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HAND-BOOK

OF

MATERIA MEDICA, PHARMACY

AND

THERAPEUTICS.

INDEX MEDICUS

Compiled for the Use of Students Preparing for Examination.

BY

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Editor of "Notes on Practice."

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PREFACE.

THIS little work aims at furnishing candidates for examination in our medical schools with a *résumé* of those points in Materia Medica, Pharmacy, and Therapeutics with which they must be familiar in order to meet the requirements of the Faculty of any reputable institution.

All the drugs recognized by the United States Pharmacopœia and their officinal preparations have been treated of in detail, special stress being laid on those points which in the past have proved stumbling-blocks to the candidate in the examination-room. The form of a question-and-answer book has been adopted as admittedly the best means of conveying the greatest amount of knowledge in the fewest words. In the majority of instances the original form of the questions as submitted to examinates has been retained. While this is essentially a *student's* manual, a large amount of matter has been incorporated which, it is hoped, will render it a useful reference-book to the *young graduate* who is just entering on his professional career, particularly the individual whose sphere of work

demands a more practical acquaintance with pharmaceutical processes than is required of the ordinary city practitioner. Great care has been taken throughout the book to familiarize the student with the best methods of administering the various drugs he will be called upon to use, and with this object a large number of standard prescriptions have been selected from the works of the most eminent authorities, which he can either adopt, with modifications to suit particular cases, or use as models on which to construct his own formulæ. It is hardly necessary to add that this work is not intended to take the place of, but to be used as an adjunct to, the various standard text-books from which its contents have been compiled. The oft-expressed wish on the part of students about to present themselves for examination for such an epitome of their three years' reading is the author's apology for adding another medical work to a catalogue already swollen to overflowing.

CUTHBERT BOWEN.

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HAND-BOOK

OF

Materia Medica, Pharmacy, and Therapeutics.

INTRODUCTION.

In order to acquire anything like a rational knowledge of Pharmacology, or the "science of remedies," the student must enter on three distinct courses of study, viz., Materia Medica, Pharmacy, and Therapeutics, and preferably in the order named. Beginning with Materia Medica, he makes his first acquaintance with the "material," as the name implies, which in the future he is to use in the treatment of disease. Next in order comes the Pharmaceutical Laboratory, in which he must, by actual practice, familiarize himself with the various methods of working up this material into the artificial forms in which it is found most advantageous to present it to the delicately organized human system for assimilation. Too much attention cannot be given to the thorough mastery of the principles of Pharmacy. Every day of his subsequent professional life the physician will find some reason for regret that he has not paid more attention to this preliminary branch of his medical education. When the subjects of Materia

Medica and Pharmacy have been thoroughly mastered, the student is in a position to begin the study of the third division of Pharmacology, viz., Therapeutics, or the science of the application of remedies to the healing (θεραπευσια) of the sick. With regard to the best method of acquiring a knowledge of the action of drugs on the human system, opinions differ. The question as to whether the brilliant methods of research instituted by such men as Wood, Ringer, and Lauder Brunton, on lower organisms, are really superior to the old-fashioned and long-established custom of relying solely on empiricism cannot be discussed here. Suffice it to say that during his curriculum, at least, the student will have barely time to gather his knowledge from his text-books; and to these we commend him. There he will find enough material to occupy his thoughts, without diverting his attention to experiments on animals, about which very few authorities are in harmony, and which, to the crude mind of the student, cannot fail to present negative results. Familiarity with the *results* of experiments is all that a student can reasonably be expected to exhibit. With regard to Materia Medica, however, the case is different; and, as the first-year student in our best schools is expected to give evidence of his personal acquaintance with the drugs of the Pharmacopœia, a few hints as to the readiest method of acquiring this knowledge may not be out of place. In order to be able to recognize them promptly, the student should provide himself with specimens of all the crude drugs. Such ordinary household articles as cloves, cinnamon, allspice, nutmeg, alum, mustard, etc., can easily be ob-

tained gratis at home, and the rest can be procured for a very moderate sum, either at a drug-store or from the Demonstrator of Pharmacy at the institution he attends. Each of these samples should be kept in a separate card-board box, or small bottle, with the name of the article clearly marked on the outside. Great care should be taken to prevent the contents of one box slipping into another, with the possible consequence of the student carefully committing to memory the various physical properties of Catechu, all the while holding in his hand and trying to make the description tally with a piece of Kino. Having made his collection, the student should commit to memory the following points about each specimen :—

I. *Its physical properties*, by which he can recognize a similar specimen at a glance.

II. *Its chemical characteristics.*

III. *Its names*, i.e., *officinal and scientific.*

Every drug possesses two names. First, its "officinal" name, by which it is known in the United States Pharmacopœia; and, secondly, its scientific or ordinary name, by which it is known in commerce. The former is always the Latin appellation of the drug, *e.g.*, Plumbum, Ferrum, Liquor Potassii Arsenitis; the latter frequently denotes the source and sometimes its originator, *e.g.*, Log-wood, Iron, Fowler's Solution.

IV. *Its habitat*, i.e., *the geographical source of the drug.* This, however, is a point of minor importance.

V. *Its source in nature.*—whether an extract, root, bark, juice, or leaf; a chemical compound or an artificial product, as the case may be.

VI. *The name of its active principle.*

VII. *Its antidote (if poisonous), or the poisons to which it may be antidotal.*

VIII. *Its preparations, their chemical and physical properties and their doses.*

These points, if mastered thoroughly, will cover the ground of Materia Medica as now taught in our best schools, and will form a sure foundation for the student to erect his superstructure of therapeutic knowledge on during the subsequent session. For the study of Therapeutics the student will find that his lectures and the valuable text-books of Wood, Maisch, Bartholow, Remington, and Ringer will furnish him all that he will be required to know on these important subjects. The first mentioned is an unrivalled treatise on the physiological action of the more important officinal drugs. For details about non-officinal drugs in every-day use (with which it is well to be familiar) the other works mentioned are recommended to the reader. When these three branches have been studied the student possesses all the knowledge which is necessary for the production of a scientific prescription; yet prescription-writing, as a distinct study, has not received the attention at the hands of medical teachers which its importance unquestionably entitles it to.

Even in our best schools but little attention is paid

to this very important part of medical education. Facility in writing prescriptions, it is assumed, can only be acquired by years of practice; yet during his course of study no attempt is made to familiarize the embryo practitioner with an art which on the day of his graduation he is *ipso facto* supposed to possess, and will be called upon to exhibit on the very first occasion his professional services are required. Until steps are taken toward making prescription-writing a distinct study to which a certain portion of the curriculum is devoted, the drug-stores will continue to be the repositories of the pharmaceutical monstrosities and parodies on prescriptions which every day disfigure the pages of their records. Insufficient grounding in the principles of compounding and combining medicines is responsible for one-half the defective recipes which go on file every day. Want of a preliminary classical education causes the remaining half. In the present article only the merest outline can be given of a subject to which a volume of many pages might not unprofitably be devoted.

PRESCRIPTION-WRITING.

In our modern abbreviated and semi-Anglicized method of prescription-writing a classical education of a high order is not an absolute necessity. The more thorough, however, the student's grounding in his Latin syntax, the freer will his prescription be from those little inaccuracies which mar the general effect of even the most pharmaceutically correct production. It is much better for those whose early classical education has been neglected, to write their prescriptions in English than to make an exhibition of their defective education

by endeavoring to compose faulty Latin recipes from a scanty stock of Latin grammar. "Dover's Powder" or "Tartar Emetic" in a clear hand has quite as finished an appearance as Pulvis Opii et Ipecacuanhæ, or Potassii et Antimonii Tartras, illegibly scrawled by the would-be Latin scholar, vainly trying, under the cover of what he is pleased to regard as a *classical* hand, to conceal his ignorance of the correct terminations of the ingredients in Latin. A good English prescription is far preferable to a bad Latin one. Much useless time has been spent in the composition of incomplete grammars intended to put the student, who has never been trained in his accidence, in possession of a few disconnected facts in Latin grammar, so as to enable him to compose his orders for medicines in a dead language. Such imperfectly acquired knowledge can never be a guarantee that its possessor can write an accurate prescription. A much more sensible plan would be for the student so situated to begin the study of Latin in real earnest and master its grammar thoroughly, or else accept the inevitable and be content to use his mother-tongue. The subsequent remarks on the composition of *Latin* prescriptions presuppose on the part of the reader a knowledge of the elementary part of Latin grammar and syntax.

Analysis of Prescriptions.— A prescription (Latin *præ*, before, and *scribere*, to write) consists essentially of four parts :—

I. *The superscription.*
II. *The inscription.*
III. *The subscription.*
IV. *The signature.*

I. *The Superscription.*—In the upper left-hand corner of the blank on which the prescription is to be written is placed the symbol ℞. This is at once a combination of an old mythological sign ♃ (intended as an invocation to the Deity), and also of the first letter of the verb *Recipio*, I take. ℞, then, stands for Recipe, imperative mood, second person, singular number, and means Take thou. It is intended as a direction to the compounder. Being a transitive verb, it is followed by an object or objects in the accusative case.

II. *The Inscription* or body of the prescription consists of the ingredients and their amounts in grains, drachms, or ounces, as the case may be. These *measures* or *quantities* are the direct objects of the verb Recipe, and are therefore in the accusative case. So far the prescription reads :—

Take so many drachms or ounces.

The ingredients themselves go into the genitive case, one after another in columnar form, and opposite each on the right hand is placed its appropriate amount. Taking a very simple prescription as an illustration,

℞ Quininæ Sulphatis, drachmam,

it would read :—

Take of Sulphate of Quinine a drachm.

When a prescription consists of but one ingredient like the foregoing it is termed a *simple* prescription. More frequently they contain several ingredients, when they are known as *compound*. The following is an illustration of a compound prescription :—

℞	Acidi tannici, ...	drachmas duas.
	Potassii chloratis, . . .	drachmam.
	Glycerini, ...	unciam.
	Aquæ, ...	uncias septem.

Sometimes the last ingredient if a *vehicle*, as it is called, is followed by the word "ad," meaning "up to," and the prescription stands as follows:—

℞ Tincturæ digitalis, . . . drachmæ semissem.
Spiritus ætheris nitrosi, . . drachmas tres.
Liquoris ammonii acetatis, . unciæ semissem.
Aquam, ... ad uncias sex.

Here the instructions read: Take water (ad uncias sex) up to six ounces, *i.e.*, water enough to fill a six-ounce bottle. In such a case the last ingredient is the *direct object* of the verb Recipe, and consequently is no longer in the genitive case. The same directions may be given in another form:—

℞ Tincturæ digitalis, . . . drachmæ semissem.
Spiritus ætheris nitrosi, . . drachmas tres.
Liquoris ammonii acetatis, . unciæ semissem.
Aquæ quantum sufficiat, ad uncias sex.

In this latter case the direct object of the verb is the word "tantum" (understood), the phrase in full reading Recipe tantum aquæ quantum sufficiat ad uncias sex, *i.e.*, "Take such a quantity of water as may be sufficient to reach six ounces."

III. *The Subscription* contains directions as to the *form* the compound shall assume. If it is to be a *liquid* preparation we put the words *Mistura fiat*, "Let a mixture be made," or simply *Misce*, "Mix thou," in the lower left-hand corner. When ordering pills, powders, or suppositories, we write *Misce et fiant* pilulæ, pulveres, *i.e.*, "Mix and let there be made," etc., or for pills we may put *Fiat massa*, *i.e.*, "Let a mass of proper consistency be made," supplementing it by the words *divide*, "divide thou," or *dividenda*, "to be divided," in pilulas Numero X. Again, we can write *Misce et fiant tales doses*,

pulveres, *pilulæ*, etc., *Numero X*,—*i.e.*, "Mix the ingredients and let there be made ten similar doses, pills, or powders,"—where only the quantities of a *single* dose have been given in the inscription above.

IV. *The Signature* contains the directions with regard to the administration of the medicine and the prescriber's name or initials,—the word *Signa*, "write thou," being intended as an instruction to the druggist to write what follows on the label of the bottle or box in which he sends the medicine to the patient. These directions are nowadays always written in English, and the numerous collections of dog-Latin injunctions to patients are only interesting as relics of the past. In the foregoing outline we have the essentials of the grammatical construction of a prescription in a nutshell. If the student will just bear in mind that ℞ is a transitive verb, that the quantities are its direct objects, and that the ingredients are to go in the genitive case, no error in the grammatical construction of a prescription can possibly occur.

Abbreviations.—Prescriptions are rarely nowadays written at full length. Symbols are employed for the various measures and weights, and their number expressed in Roman figures. Abbreviated, the above prescriptions would read as follow:—

℞ Acid. tan., ... ℥ij.
Potass. chlorat., ... ℥j.
Glycerin., ... f℥j.
Aquæ, ... f℥vij.
M. Sig.: Use as a gargle.

℞ Tr. digitalis, ... f℥ss.
Spts. æth. nit., ... f℥iij.
Liq. ammon. acetat., ... f℥ss.
Aq., ... ad f℥vj.
M. Sig.: A tablespoonful every three hours.

M. ft., as an abbreviation, is used for Misce et fiat and Misce et fiant, indiscriminately.

Abbreviations are admissible provided so much of the word be left as to render its confusion with any other word with similar initial letters absolutely impossible. For instance, acid. is admissible as an abbreviation for acidi, but sulphur. is wholly inadmissible under any circumstances, as it stands equally well for sulphuris, sulphurosi, sulphurici, sulphidi, sulphitis, sulphatis, etc., and its employment might lead to most serious errors. It would be better, on the whole, not to abbreviate; but, with the foregoing precaution strictly observed and due care paid to legibility in writing, very serious objection cannot be taken to the practice.

A list of the more ordinary Latin terms now in use, with their appropriate abbreviations, is found on pages 26–28.

WEIGHTS AND MEASURES.

The following is the apothecary's or troy weight used in this country, with the symbols generally employed:—

20 grains (gr.)	make	1 scruple,	℈.
3 scruples	"	1 drachm,	ʒ.
8 drachms	"	1 ounce,	℥.
12 ounces	"	1 pound,	lb.

The use of the sign ℈ for scruple might well be omitted. When hurriedly written it bears a dangerous resemblance to the sign ʒ, and has led to serious mistakes.

For fluids, what is known as wine measure or apothecary's measure is adopted. The letter f signifies fluid or liquid measures:—

60 Minims (♏)	make	1 fluidrachm,	fʒj.
8 Fluidrachms	"	1 fluidounce,	f℥j.
16 Fluidounces	"	1 pint,	Oj.
8 Pints	"	1 gallon,	Cj.

The letter C stands for the Latin Congius, a gallon; O for Octarius, a pint. Medicines are frequently prescribed in the form of drops or guttæ, the abbreviation of which is gtt. Drops vary considerably in size, and unless the prescriber has a definite idea of the amount of the ingredient in each drop of the fluid ordered mistakes are very likely to occur, *e.g.*, a drachm of water contains 60 drops, while a drachm of purified chloroform contains 250. *Vide* "Table of Drops to a Drachm," page 29. The employment of some standard quantity, as a minim, is far preferable.

Domestic Measures.—A teaspoon is generally *supposed* to hold a fluidrachm, a dessertspoon two, and a tablespoon four fluidrachms. These measures are not safe owing to the great difference in the contents of so-called tea-, dessert-, and tablespoons. Little graduated glasses may be had of any drug-store, and every family should possess one for the administration of remedies ordered by their physician.

COMPOSITION OF PRESCRIPTIONS.

As stated above, prescriptions may be simple or compound. The majority contain more than one ingredient, but the tendency nowadays is toward as much simplicity as possible. A rationally constructed prescription usually contains the following ingredients:—

I. *The principal active agent,—the Base.*

II. *An adjuvant to assist its action,—the Auxiliary.*

III. *An ingredient to counteract any unpleasant effects of the foregoing,—the Corrective.*

IV. *Some pleasantly tasting, inactive substance, either to hold the foregoing in solution, or to give a consistent form to the preparation,—the Vehicle.*

An illustration will make this clear:—

℞ Chloralis, ... ℥j.
Potassii bromidi, ... ℥ij.
Syrupi aurantii, ... fℨiss.
Aquæ, ... q. s. ad fℨiij.
M. Sig.: A tablespoonful for a dose. C. B.

The object aimed at in the above is the administration of Chloral. Chloral, then, is the *basis* or active ingredient. This might suffice of itself, but the action of Chloral is greatly augmented by the addition of Bromide of Potash; hence Bromide of Potash is inserted as the *adjuvant* or auxiliary. This combination needs no active *corrective*, but to disguise the taste of the Bromide, Syrup of Orange is introduced, and the whole is administered in water, which is the *vehicle* in this case. As an illustration of a corrective, we may cite the following prescription:—

℞ Extracti colchici, ... gr. x.
Massæ hydrargyri, ... gr. x.
Pulveris digitalis, ... gr. v.
Extracti opii, ... gr. ij.
Fiat massa. Divide in pilulas Numero X.
Sig.: One every four hours. C. B.

In the foregoing, Colchicum and Blue Mass, for their specific action in gout, form the *Basis* of the prescription. They mutually assist each other in the attainment of the cholagogue action aimed at. But Colchicum has a tendency to depress the heart. Accordingly, Digitalis is introduced as a *corrective* to counteract this tendency.

Podophyllum is frequently administered in pill form, but, owing to its tendency to cause griping pains, Extract of Belladonna or Hyoscyamus should always be incorporated with it as a corrective. This remark applies equally well to very many of the purgatives in general use.

General Rules for the Composition of Extempore Prescriptions.—I. Write the ingredients down in the following order: (1) Base; (2) Adjuvant; (3) Corrective; (4) Vehicle.

II. Having written the *ingredients* down in order,—*e.g.*:

℞ Potassii cyanidi,
Acidi hydrochlorici *diluti*,
Glycerini,
Syrupi pruni virginianæ,
Syrupi scillæ,—

settle upon the *size of the bottle* you will order, whether a two-, four-, six-, or eight-ounce, according to the number of doses you think it right to prescribe. Your vehicle we will suppose, then, is to make up, with the other ingredients, a quantity of three ounces.

Your prescription now stands:—

℞ Potassii cyanidi,
Acidi hydrochlorici *diluti*,
Glycerini,
Syrupi pruni virginianæ,
Syrupi scillæ, ... q. s. ad ℥iij.

III. Having decided on ordering a three-ounce mixture, you next determine the *size of your dose*. If a teaspoonful be selected,—as your mixture is to be a three-ounce one, and therefore will contain twenty-four teaspoonfuls,—you know that you have to calculate for twenty-four doses. You write in the *subscription* Misce

and in the *signature* Signa: A teaspoonful two or three times a day, or at whatever intervals you desire to administer your remedy.

IV. Knowing the number of doses, you now find, by multiplication of course, the necessary quantity of each ingredient. In this case, say you wish to give your patient $\frac{1}{8}$ of a grain of Cyanide of Potassium for a dose. Twenty-four doses containing $\frac{1}{8}$ grain each would be gr. iij; accordingly you write gr. iij after the first ingredient. Five minims of Muriatic Acid is your selected dose, 24 times 5 minims make 120 minims, or 2 fluidrachms, and you write this after the second ingredient. Ten minims of glycerin for a dose will give 240 minims, or f℥ss., and half a teaspoonful of Syrup of Wild Cherry gives f℥iss for the whole amount to be ordered.

Your completed prescription then reads:—

℞ Potassii cyanidi, ... gr. iij.
Acidi hydrochlorici *diluti*, ... f℥ij.
Glycerini, ... f℥ss.
Syrupi pruni virginianæ, ... f℥iss.
Syrupi scillæ, ... q. s. ad f℥iij.
Misce.
Signa: A teaspoonful in water three times a day.

Where the same amount of two consecutive substances is ordered in a prescription, the quantity is omitted after the first one, and the sign āā placed after the second ingredient is supposed to refer to both of them, and means "apiece" or "each," *e.g.*:—

℞ Extracti humuli, ... ℥j.
Elixiris ammonii valerianatis,
Syrupi lactucarii, ... āā f℥ss.

This means that the sign f℥ss applies equally to the Elixir of Ammonium and the Syrup of Lactucarium. In the construction of prescriptions the prescriber should aim at making his mixtures as pleasant to the taste, to the nose, and to the eye, as he possibly can. Elegant preparations go a long way in endearing the physician to his patients, and the habit of paying strict attention to these too-often neglected points constitutes, in a great measure, the future success of the young prescriber.

COMBINATION OF DRUGS.

In his selection of the various ingredients of a prescription the writer must be guided by the principles of chemistry, pharmacy, and therapeutics, and not solely by his own idea of what would be a happy mixture. There are a great many remedies which, owing to some peculiar property, should not be administered in combination at all; while the number of combinations which may be made with certain others is comparatively small. Remedies which cannot be administered in the same solution are termed incompatibles. Their incompatibility may be based on chemical, pharmaceutical, or therapeutical grounds. As an instance of a chemical incompatibility may be mentioned the association of an acid with an alkali, of Tannic Acid with a salt of Iron, or of Tannic Acid with solutions of Lead and Silver. In all these instances a chemical action takes place, with the production of a substance entirely different from the original intention of the prescriber. Such errors are made every day, and yet they are only due to a flagrant disregard of the first principles of chemistry.

CHEMICAL INCOMPATIBILITY.

With the careful attention which is now being paid in our schools to chemistry, such errors are gradually diminishing in frequency, and in a few years no doubt their perpetration will be relics of the past. For the benefit of those whose chemistry is a little rusty the following points may be found of service: The prescriber should be cautious in the use of strong acids in combination with other remedies. He should carefully weigh in his mind the reaction that their addition to the other ingredients of the preparation will cause, and consider whether the resulting compound is soluble in the vehicle he has selected. Quinine, Phosphoric Acid, and some vehicle are frequently seen in combination. What is the result? The Phosphoric Acid combines with the Quinine to form Phosphate of Quinine, and as this is an insoluble salt it falls to the bottom of the bottle in the form of a thick unsightly-looking precipitate. Two salts should not be combined which in solution will change their radicals and form a third insoluble compound. Quinine Sulphate and Potassium Acetate will in solution produce a heavy, unmanageable precipitate of Acetate of Quinine. Unless the prescriber intends the production of a salt, acids and chemical bases should not be brought together. Sometimes, however, this is done with good results. Lead Acetate and Zinc Sulphate are intentionally combined to produce a compound which experience has proved to be of service in the treatment of gonorrhœa. The solubility of various salts is a question to which, in the study of chemistry, too much attention cannot be devoted. Whenever the

component parts of a salt are brought together that salt will thereby be formed, and if it happens to be an insoluble one, the whole preparation is virtually spoiled by its precipitation. Care should be taken to avoid the production of the hydrates, carbonates, phosphates, borates, and tannates of the alkaloids and of the metals. Sulphate of calcium is insoluble. Its production should not be brought about by ordering Lime-water with Sulphate of Morphine or of Quinine. So, too, Ammonium, Potassium, and Sodium Carbonates would form precipitates if brought into contact with Lime-water. The foregoing are instances of blunders which could only arise in face of the neglect of the ordinary laws of chemical combination, and as such are inexcusable. More frequently, errors arise from the prescriber's want of intimacy with the integral constituents of Pharmaceutical preparations, *e.g.*, Syrup of Squills should not be combined with Alkaline Carbonates for the simple reason that it contains Acetic Acid as an ingredient. This would immediately act upon the Carbonate and evolve Carbonic Acid Gas. The same remarks apply to the Syrup of Garlic, which contains forty per cent. of Acetic Acid.

THERAPEUTICAL INCOMPATIBILITY.

Two substances are said to be therapeutically incompatible when their action on the human system is mutually antagonistic, *e.g.*, Belladonna and Calabar Bean; Morphine and Atropine. The student who has received any kind of training in the physiological action of drugs is not likely to be guilty of combining two diametrically opposed agents; so this subject may be dismissed without further comment.

PHARMACEUTICAL INCOMPATIBILITY.

The third class of incompatibles is much more formidable, and it is in the avoidance of these pharmaceutical errors that even our best-trained graduates find their greatest difficulty. Substances are pharmaceutically incompatible when they react upon each other in such a way as to throw each other out of solution, causing an unsightly precipitation to take place, or producing a disagreeably looking, tasting, or smelling mixture, *e.g.*, the admixture of a resin-containing substance, such as the fluid extract of Cannabis Indica with an aqueous preparation, would cause the resin to be thrown out of solution, and might lead to a serious accident, owing to its uneven distribution throughout the preparation. In order to disguise the taste of Quinine, Licorice is frequently added, with good result. The addition of strong acid, however, would cause a precipitation of Glycyrrhizin, and entirely counteract the object originally aimed at. Iodide of Potassium decomposes nearly all metallic salts, and Corrosive Sublimate is decomposed by everything with which it is associated. The combination of highly oxidizable substances with active oxidizers often results in explosive compounds. Among powerful oxidizers may be mentioned the Permanganate and Chlorate of Potassium, Nitric and Nitro-Hydrochloric Acids; while the Oils and Ethers, Phosphorus and Glycerin readily suggest themselves as instances of readily oxidizable substances. Catechu and Potassium Chlorate have exploded from the friction used in their incorporation into a tooth-powder. The action of Nitric Acid on Glycerin is well known.

In the appended list of Incompatibles (p. 53) the reader will find many valuable points in connection with this important subject.

THE METRIC SYSTEM.

Within the last few years the Metric System has been gradually gaining favor among our pharmacists and physicians, and, although its general adoption in this country is more remote than its enthusiastic supporters would have us believe, it behooves all scientific men to become familiar with its details. The metrical unit, on which the entire system is based, is the $\frac{1}{40,000,000}$ part of the earth's meridian, or, what is the same thing, the $\frac{1}{10,000,000}$ part of the distance from the equator to the poles. This is termed a Metre, and is 39.370432 inches in length. Approximately speaking a Metre may be said to be 3 feet 3 inches. Like our system of dollars and cents, the metric system is a decimal one. The Latin prefixes Deci, Centi, and Milli are used to express *subdivisions*, and the Greek terms Deka, Hecto, Kilo, and Myria *multiples* of the units of weight, length, capacity, etc. Thus, taking the Metre as the unit of length, and denoting it by the figure 1,—

A Kilometre	= 1000	Metres	= 1000.
A Hectometre	= 100	"	= 100.
A Dekametre	= 10	"	= 10.
A Decimetre	= $\frac{1}{10}$	"	= .1
A Centimetre	= $\frac{1}{100}$	"	= .01
A Millimetre	= $\frac{1}{1000}$	"	= .001

Capacity.—A cubical vessel whose side measures a decimetre is the unit of capacity. It represents a quantity a little over two pints. The vessel is termed a *Litre*. Its exact capacity is 2.113433 pints.

Like the Metre, the Litre is subdivided as follows: Taking a Litre as 1,—

A Decilitre	=	$\frac{1}{10}$	Litre	= .1
A Centilitre	=	$\frac{1}{100}$	"	= .01
A Millilitre	=	$\frac{1}{1000}$	"	= .001

Similarly,—

A Dekalitre	=	10	Litres	= 10.
A Hectolitre	=	100	"	= 100.
A Kilolitre	=	1000	"	= 1000.
A Myrialitre	=	10000	"	= 10000.

Weight.—A mass of water at 4° C. measuring a cubic centimetre is taken as the unit of weight. This unit is termed a *Gramme*, and corresponds to about 15 grains in our scale. The exact equivalent of a Gramme is 15.43234874 grains. Like the Metre and Litre, the Gramme is subdivided as follows:—

A Decigramme	=	$\frac{1}{10}$	Gramme	= .1
A Centigramme	=	$\frac{1}{100}$	"	= .01
A Milligramme	=	$\frac{1}{1000}$	"	= .001

Similarly,—

A Dekagramme	=	10	Grammes	= 10.
A Hectogramme	=	100	"	= 100.
A Kilogramme	=	1000	"	= 1000.
A Myriagramme	=	10000	"	= 10000.

TABLE SHOWING THE RELATION OF THE PRECEDING WEIGHTS AND MEASURES TO OUR OWN.

					1. **Metre**	=	39.370432	Inches.
			1. Decimetre	= .1	"	=	3.9370432	"
		1. Centimetre	= .1	"	= .01	"	= .39370432	"
1 Millimetre	= .1	"	= .01	"	= .001	"	= .039370432	"
					1. **Litre**	=	2.2113433	Pints.
			1. Decilitre	= .1	"	=	.22113433	"
		1. Centilitre	= .1	"	= .01	"	= .022113433	"
1 Millilitre	= .1	"	= .01	"	= .001	"	= .0022113433	"
					1. **Gramme**	=	15.43234874	Grains.
			1. Decigramme	= .1	"	=	1.543234874	"
		1. Centigramme	= .1	"	= .01	"	= .1543234874	"
1 Milligramme	= .1	"	= .01	"	= .001	"	= .01543234874	"

METRIC PRESCRIPTIONS.

So far as prescription-writing is concerned, we have only to deal with the gramme and its subdivision the centigramme. Both solids and liquids are ordered by weight in so many grammes or centigrammes. Thus :—

℞ Tincturæ gentiani, ... 25·

would read Take 25 grammes of Tincture of Gentian.

℞ Tincturæ aconiti, ... ·25

would read Take 25 centigrammes of Tincture of Aconite.

The figures denoting the number of grammes are placed to the *left* of the decimal point. Those denoting the centigrammes are placed to the *right*. If the reader is familiar with the decimal system, as any one must be in order to comprehend the metric system, it will hardly be necessary to point out that

℞ Tincturæ belladonnæ, ... 2·5

would mean two grammes and *fifty* centigrammes, and not five centigrammes. If we wished to write for two grammes and *five* centigrammes we would put

℞ Tincturæ belladonnæ, ... 2·05

Instead of the numbers being separated by a decimal point, a safer plan would be to draw a perpendicular line, as in the following prescription,—the figures to the left signifying grammes, and those on the right centigrammes :—

℞ Potassii bromidi, ...	2	50
Sodii bromidi, ...	1	
Liquoris potassii arsenitis, ...		20
Extract conii fluidi, ...		60
Aquæ cinnamomi, ...	4	
Infusi gentiani comp., ...	8	

Here the figures 2, 1, 4, and 8 denote that number of grammes; 50, 20, and 60 the number of centigrammes. If there are more than two figures on the right-hand side of the line or the decimal point the *first two* are read as so many centigrammes, and the rest as fractional parts of the centigramme. Thus, | 547 would be read 54 centigrammes and $\frac{7}{10}$ of a centigramme; | 5478 would be 54 centigrammes and $\frac{78}{100}$ of a centigramme, and so on; but in prescriptions generally such subdivision is not carried to this extent.

If we know the doses of drugs and preparations in the units of metric system we shall find no difficulty in writing a prescription in grammes and centigrammes, and the rules given on page 13 are equally applicable here. Since 15·432 grains approximately are equivalent to 1 gramme, we find by a simple mathematical calculation that 1 grain is equivalent to ·06479 grammes. Hence, to find the equivalent of a given number of grains in grammes we multiply the number of grains by ·06479. If we are not very particular about accuracy we can say approximately that 15 grains are equivalent to 1 gramme, and simply *dividing the number of grains by 15* obtain some idea of the equivalent in grammes. So far as solid preparations are concerned the metric system presents no difficulties whatever. In calculating for liquid ingredients a new feature is introduced, viz., the estimation of the probable volume which a given *weight* of liquid will occupy. This is at first rather puzzling to the novice.

In writing for liquids, while we order them by *weight*, our patients will take them by *measure*; hence we must keep in mind the probable amount of space they will

occupy in our bottle, *e.g.*, one gramme of water we know will occupy one cubic centimetre, and the same relation exists between the fluid extracts (with certain notable exceptions), the liquors, dilute acids, and the waters. The alcoholic tinctures, the spirits, and the oils are about $\frac{9}{10}$ as heavy as water. Hence, to make up the equivalent of a gramme of water only $\frac{9}{10}$ parts by weight of any of them will be required. In other words, we deduct $\frac{1}{10}$ from the weight of an equivalent amount of water. Glycerin, being heavier than water, occupies a smaller bulk. We must, therefore, put in *more* than one gramme of Glycerin if we wish to make up a cubic centimetre. In the case of Glycerin an increase of $\frac{1}{4}$ by weight will make up a mass equal to the mass of the same weight of water. An illustration will make this clear. Suppose we intend to make up a liniment of 100 grammes (*i.e.*, 100 c.c. of fluid), consisting of equal parts of Aconite, Belladonna, Chloroform, and Glycerin. Twenty-five grammes of Belladonna, having the same specific gravity as water would give 25 cubic centimetres; 25 grammes of Aconite would give the same; but 25 grammes of Glycerin, owing to its greater weight, would not give a bulk equal in size to the 25 cubic centimetres of Aconite or the 25 cubic centimetres of Belladonna. The same remarks apply to the Chloroform. Hence, if we wrote for *equal* parts *by weight* of these four ingredients we should have a liniment which was not composed of equal volumes of the ingredients, nor would it fill a 100-gramme bottle. It would, of course, *weigh* 100 grammes, but would fall short of the bulk occupied by 100 grammes of water. To fill a 100-gramme bottle we should have to increase our weight of Chloro-

form by $\frac{1}{2}$ and our Glycerin by $\frac{1}{4}$, and in reality write for 30 grammes of Glycerin and 38 grammes of Chloroform. This would give us a liniment which filled a 100-gramme bottle, and contained equal parts *by measure* of Aconite, Belladonna, Glycerin, and Chloroform.

Where the vehicle can be written with the sign ad (up to), or where its quantity is not of great importance, we can write for a liquid preparation with as much readiness as in our own system. Taking the prescription on page 13, we will write a similar one in the metric form :—

℞ Potassii cyanidi,
Acidi hydrochlorici *diluti*,
Glycerini,
Syrupi pruni virginianæ,
Syrupi scillæ, ... ad grammes 100.

We will give 5 grammes of the mixture for a dose. This will make the number of doses 20. Taking gm. ·008 (about $\frac{1}{8}$ grain) as the dose of Potassii Cyanidum, and multiplying it by 20 we get ·16. Grammes ·50 (about eight minims) of Muriatic Acid dilute multiplied by 20 gives us 10. Grammes ·80 of Glycerin (fifteen minims) multiplied by 20 give 16 grammes. Grammes 2 of Syrup of Wild Cherry multiplied by 20 give grammes 40, and the remaining part of the whole 100 grammes is made up of Syrup of Squills. The prescription then reads as follows :—

℞ Potassii cyanidi, ...		16
Acidi hydrochlorici *diluti*, . . .	10	
Glycerini, ...	16	
Syrupi pruni virginianæ, ...	40	
Syrupi scillæ, ...	ad 100	

From the foregoing examples the reader can gain a fair idea of the merits and demerits of the metric

system. By its adoption, it is argued, we shall be in uniformity with a great part of the civilized world. This is somewhat of an advantage, but until the system is adopted in its entirety I fail to see how individual practitioners here and there will be benefited by first writing their prescriptions in our own system and then, by a long process of mathematical calculation, transforming their grains, drachms, and ounces into approximately equivalent quantities of grammes and centigrammes,—a practice so strongly recommended in many text-books. Owing to the great difference which exists in the specific gravities of the various liquid preparations, any calculation of their bulk based on their weight must necessarily be uncertain. In order to be *perfectly* accurate, reference must constantly be made to tables specially prepared, showing the relative volume of liquid preparations to the volume of an equal weight of water. Our own system of drachms and ounces for fluids is just as accurate, and a great deal more handy for the physician to write his recipes by than the substitute offered by the metric system, the adoption of which involves an amount of mathematical calculation which renders prescription-writing irksome.

LATIN VOCABULARY.

The following list comprises all the more important Latin words (with their genitive cases) and phrases with which the practitioner of to-day should be familiar :—

		ABBREVIATION
Abstract-um—i.	Abstract.	Abstract.
Acid-um—i.	Acid.	Acid.
Ad (prep.).	Up to.	
Ana.	Each or apiece.	āā.
Aqu-a—æ.	Water.	Aq.

		ABBREVIATION
Bis (adverb).	Twice.	
Cerat–um—i.	Cerate.	Cerat.
Chart–a—æ.	Paper.	Chart.
Cib–us—i.	Food.	Cib.
Collyri–um—i.	Eye-wash.	
Composit–us—a—um.	Compound.	Comp.
Confecti–o—onis.	Confection.	Confec.
Cortex, Corticis.	Bark.	Cort.
Cum (prep. gov. ablative case)	With.	
Decoct–um—i.	Decoction.	Decoc.
Dilut–us—a—um.	Diluted.	Dil.
Divide (vb., imp. mood).	Divide thou.	Div.
Dosis (plural doses).	Dose.	
Emplastr–um—i.	Plaster.	
Enema.	Enema.	
Extract–um—i.	Extract.	Ext.
Fluid–us—a—um.	Fluid.	f.
Fiat (plural Fiant).	Let there be made.	Ft.
Gargarysma.	A gargle.	Garg.
Glyceritum.	Glycerite.	
Gutt–a—æ.	A drop.	gtt.
Haustus.	Draught.	
Hora.	An hour.	
In dies.	Daily.	i. d.
Infus–um—i.	Infusion.	Inf.
Lac, Lactis.	Milk.	
Liquor–is.	Solution.	Liq.
Lotio–onis.	Lotion.	
Mass–a—æ.	A mass.	Mass.
Misce.	Mix thou.	M.
Mistur–a—æ.	Mixture.	Mist.
Mucilag–o—inis.	Gum.	
Numero.	In number.	No.
Pars, Partis.	A part.	
Pilul–a—æ.	A pill.	Pil.
Post cibum.	After food.	p. c.
Pro re nata.	According to circumstances.	P. r. n.
Pulv–is—eris.	Powder.	Pulv.
Quantum sufficiat.	As much as may be sufficient.	q. s.
Semissis.	Half.	ss.
Signa.	Write thou.	Sig. or S.
Solutio.	Solution.	Sol.
Solve.	Dissolve.	
Spiritus.	Spirit.	Spts.

		ABBREVIATION
Suppositori-um—i.	Suppository.	Suppos.
Syrup-us—i.	Syrup.	Syr.
Talis (plural tales).	Such.	
Tinctur-a—æ.	Tincture.	Tinct. or Tr.
Ter in die.	Three times daily.	t. d.
Unguent-um—i.	Ointment.	Ung.
Vin-um—i.	Wine.	Vin.
Vitellus.	Yolk of egg.	Vitel.

NUMERAL ADJECTIVES.

	SIGN		SIGN
1. Unus,	i	18. Duodeviginti,	xviij
2. Duo,	ij	19. Undeviginti,	xix
3. Tres,	iij	20. Viginti,	xx
4. Quatuor,	iv	21. Viginti unus,	xxj
5. Quinque,	v	22. Viginti duo,	xxij
6. Sex,	vj	23. Viginti tres, etc.,	xxiij
7. Septem,	vij	30. Triginta,	xxx
8. Octo,	viij	31. Triginta unus,	xxxj
9. Novem,	ix	32. Triginta duo,	xxxij
10. Decem,	x	40. Quadraginta,	xl
11. Undecim,	xj	50. Quinquaginta,	l
12. Duodecim,	xij	60. Sexaginta,	lx
13. Tredecim,	xiij	70. Septuaginta,	lxx
14. Quatuordecim,	xiv	80. Octoginta,	lxxx
15. Quindecim,	xv	90. Nonaginta,	xc
16. Sexdecim,	xvj	100. Centum,	c
17. Septemdecim,	xvij	200. Ducenti,	cc

In order to avoid the possible confusion of the figures v and i, when several of them are in proximity, and the latter is written hurriedly with a slant stroke connecting the upright figures, it is customary to draw a line over the numerals, and by means of a dot to distinguish the figure i. Thus, ij, iij, iv, vj, vij, viij.

NUMBER OF DROPS IN A DRACHM.

The following table exhibits the number of drops in a drachm of those preparations generally ordered in the form of drops:—

Liquor Potassii Arsenitis,	57
Donovan's Solution,	58
Acidum Phosphoricum, *dilutum*,	59
Acidum Sulphurosum,	59
Acidum Hydrocyanicum, *dilutum*,	60
Syrup Ferri Iodidi,	65
Acidum Hydrochloricum,	70
Acidum Nitro-Hydrochloricum,	76
Oleum Ricini,	77
Acetum Sanguinariæ,	78
Acetum Opii,	90
Vinum Opii,	100
Acidum Nitricum,	102
Oleum Tiglii,	104
Vinum Colchici Radicis,	107
Tinct. Opii Deodorati,	110
Acidum Carbolicum,	111
Vinum Colchici Seminis,	111
Oleoresina Capsici,	120
Creasoti,	122
Oleoresina Cubebæ,	123
Olei Gaultheriæ,	125
Acidum Sulphuricum,	128
Tinct. Digitalis,	128
Tinct. Opii,	130
Tinct. Opii Camph.,	130
Liquor Hydrarg. Nitratis,	131
Tinct. Cantharidis,	131
Extractum Digitalis,	134
Extractum Conii,	137
Tinct. Belladonnæ,	137
Tinct. Nucis Vomicæ,	140
Spiritus Ammoniæ Aromatici,	142
Tinctura Veratri Viridis,	145
Spiritus Æth. Nitrosi,	146
Tinct. Aconiti,	146
Acidum Sulphuricum Aromaticum,	146
Hoffman's Anodyne,	148
Extractum Gelsemii,	149
Extractum Buchu Fluidum,	150
Spiritus Chloroformi,	150
Extractum Veratri Viridis,	150
Extractum Belladonnæ,	156
Extractum Cimicifugæ,	160
Æther Fortior,	176
Purified Chloroform,	250

The importance of the foregoing table may be gathered from the following facts: In giving 150 drops of Sulphuric Ether, or any similar ethereal tincture, the patient receives not one fluidrachm; whereas the same number of drops of Hydrocyanic Acid would be equal to nearly three fluidrachms.

DEFINITION OF TERMS.

What do you understand by Materia Medica?

Materia Medica is that branch of medical science which has for its object the study of the physical and chemical properties of all substances used as medicines, together with their physiological and toxicological actions and their various modes of preparation and administration.

What is the scope of Toxicology?

Toxicology embraces the study of the effects which drugs produce when taken into the system in sufficiently large doses to be detrimental to life, and of the appropriate measures to be resorted to in order to counteract their poisonous effects.

What is meant by the Physiological Action of a drug?

The effects produced by the administration of that drug to a perfectly healthy organism in doses not large enough to be toxic or poisonous.

What is Pharmacy?

Pharmacy is the art of preparing medicines in a convenient form for administration. In its more restricted sense it is synonymous with "dispensing," or the process of combining remedies on the order or "prescription," as it is called, of a physician. (Extemporaneous or Magistral Pharmacy).

What do you understand by Therapeutics?

Therapeutics is the science of the application of remedies to the cure or alleviation of disease.

In what way may the study of Therapeutics be approached?

Rationally and Empirically.

What do you understand by Empirical as contrasted with Rational Therapeutics?

In Empirical Therapeutics the employment of a drug is based upon the fact that the drug has been known to have been of service in similar previous cases. In Rational Therapeutics the proper employment of a remedy is deduced from the observance of its effect on a healthy organism; in other words, from its physiological action.

Give instances of the Empirical use of medicines.

The use of the so-called specifics, *e.g.*, Quinine in malarial fevers, Iodide of Potassium in syphilis, etc.

What do you understand by Natural Therapeutics?

The operations and processes of nature by which what are known as "spontaneous cures" are effected.

What is Applied Therapeutics?

Applied Therapeutics is the employment of external agents with a view to modifying the course of a disease, the alleviation of pain, and the restoration of a diseased organism to its normal condition.

What general term is used to embrace all that appertains to the study of medicine?

Pharmacology, or the "Study of Drugs," which includes Materia Medica, Pharmacy, and Therapeutics.

What is a Pharmacopœia?

A Pharmacopœia is an officinal list of those drugs

and their various preparations which are recognized by the medical profession of any country.

What is a Dispensatory?

A Dispensatory is a private publication giving *in extenso* the physical and medicinal history, physiological, therapeutic, and toxicological actions of not only those drugs which are recognized by the Pharmacopœia, but of all remedies supposed to be of service in the treatment of disease.

Which are the principal Dispensatories?

The United States Dispensatory and the National, both published in Philadelphia.

ADMINISTRATION, ABSORPTION, ETC.

In how many ways may medicines enter the system?

Five, viz., through the skin and cellular tissue, the lungs, the stomach, the veins, and the rectum.

By what methods may substances be absorbed through the skin?

In three methods,—the endermatic, epidermatic, and enepidermatic.

Which is the most commonly employed?

The epidermatic.

Explain the process.

The medicament to be absorbed is placed on the unbroken skin and friction is employed in order to promote its entrance between the cells of the epidermis.

What drugs are chiefly absorbed in this way?

Fats and ointments, such as Cod-liver Oil in phthisical and Mercurial Ointment in syphilitic cases.

How does this process differ from the enepidermatic method?

In the fact that friction is not employed in the latter.

What agents are the most favorable menstrua for this kind of absorption?

Chloroform, or Chloroform and Alcohol combined.

Explain endermatic absorption.

The epiderm, which is the chief obstacle to absorption, is first raised by blistering either with Aqua Ammonia or Cantharides plaster supplemented by a poultice, and then removed with a pair of scissors. The medicinal agent, being sprinkled on the raw surface, is readily absorbed.

What advantages do these methods of medication possess?

They are of service when the stomach is irritable and that avenue of medication is closed.

In what condition must substances be for introduction into the subcutaneous areolar tissue?

They must be liquid.

What other name is applied to this method?

The hypodermatic, or wrongly so called "hypodermic" method.

What precautions should be observed with regard to a subcutaneous injection?

The substance should be in *perfect solution*. No *foreign* matter should be present. The solution should be *neutral* in reaction and freshly made.

What is the best vehicle for hypodermic injection?

Perfectly clear water, previously heated to the boiling point, or chloroform-water of the strength of ℥ij to the ounce.

Under what circumstances are the veins used as channels of medication?

Only in great emergencies, as the process is not unattended with danger. Such cases as collapse of cholera, diabetic coma, the prostration of snake-poisoning, where immediate response to the action of a drug is of paramount importance, alone justify recourse to this expedient.

What do you mean by Transfusion?

It is the introduction and substitution of healthy for unhealthy blood in an individual.

How many kinds of Transfusion are there?

Two,—Mediate and Immediate?

What is Mediate Transfusion?

In Mediate Transfusion the blood is first received into a receptacle and thence transfused by a suitable apparatus into the system of the patient.

What is Immediate Transfusion?

In Immediate Transfusion the blood is conveyed directly from the veins of the supplier to the veins of the recipient.

How much blood is it advisable to introduce into the system in this way?

From four to eight ounces.

What are the dangers attending the operation?

The coagulation of the blood and the admission of air.

What are the advantages of Arterial Transfusion?

The blood has to traverse the capillary circulation before reaching the heart, and thus sudden engorgement of that viscus is obviated?

In what cases is Transfusion demanded?

Where life is in jeopardy from excessive hemorrhage, whether from abortion or post-partum, or from poisons which have no known antidotes.

What class of substances are most suitable for introduction through the lungs?

Vapors and gases and atomized fluids.

What substances are generally administered in this way?

Vapors of Creasote, Carbolic Acid, Iodine, Ethyl Iodide, Iodoform.

When is the rectum used as an avenue of medication?

When a patient is unable to swallow, or the stomach too irritable to retain the required substance.

What precautions are necessary in using the rectum as an avenue of medication?

The rectum should be emptied of its fecal contents by an ordinary enema. The substance used should be in solution preferably, or incorporated with fat or soap in the form of a suppository. The solution used should have the same temperature as the rectum, or about 100° F.

How much may be introduced at a time?

Not more than two fluidounces.

What substances are unsuited for administration per rectum?

Solids which require an acid for their solution.

What is the reaction of the rectal fluids?

They are alkaline.

What substances are most readily absorbed per rectum?

The salts of the alkaloids in solution, *e.g.*, Morphine, Atropine, and Strychnine.

What do you mean by Parenchymatous Injection?

Parenchymatous Injection is the introduction of a

remedy for its local effect deeply into the substance or parenchyma of a nerve or muscle.

What agents are chiefly used in this way?

Strychnine for a paralyzed muscle, Chloroform for sciatica, and Hydrochlorate of Cocaine for its local anæsthetic effect.

Which is the most ordinary avenue of absorption?

The Stomach.

What are the conditions most favorable to absorption?

"The viscus should be empty, its mucous membrane in good order, and the veins not turgid." (Bartholow.)

What two classes of substances enter the stomach?

Colloidal and crystalloidal.

Explain these terms.

Colloidal substances must be previously digested and dissolved before they can be absorbed by the blood-vessels of the stomach. Crystalloidal, on the other hand, pass by a process of osmosis directly into the vessels.

In what way is administration affected by this fact?

Medicines that require digestion preliminary to absorption should be administered when the stomach is full and the process of digestion active.

In what forms are medicines administered by the stomach?

In various liquid and solid preparations.

What are the various forms of liquid preparations recognized by the U. S. Pharmacopœia?

Decoctions, Infusions, Liquors (or Solutions), Mixtures, Syrups, Mucilages, Honeys, Vinegars, Tinctures, Spirits, Wines, Oils, Oleoresins, Juices, Fluid Extracts, Elixirs, Waters.

What are the Menstrua used for liquid preparations?

Water, Alcohol, Ether, Vinegar, and Glycerin.

How are Decoctions made?

By boiling crude drugs in water.

How many officinal Decoctions are there?

Only two.—Decoctum Cetrariæ and Decoctum Sarsaparillæ Compositum.

What is the general strength of Decoctions?

Ten per cent.

How do Infusions differ from Decoctions?

Infusions are made *without boiling*.

How many Infusions are officinal?

There are five,—Infusa of Brayeræ, Cinchonæ, Digitalis, Pruni Virginianæ, and Infusum Sennæ Compositum.

In what way does the Infusion of Digitalis differ from the others?

It contains Alcohol to prevent decomposition.

What are Liquors?

Liquors are aqueous solutions of *non-volatile* substances.

How many officinal Liquors are there?

Twenty-five, viz.:—

Liquor Acidi Arseniosi.
Liq. Arsenii et Hydrargyri Iodidi.
Liq. Calcis.
Liq. Ferri et Quininæ Citratis.
Liq. Iodi Compositus.
Liq. Pepsini.
Liq. Plumbi Subacetatis.
Liq. Plumbi Subacetatis Dilutus.
Liq. Potassæ.
Liq. Sodæ.
Liq. Sodii Arseniatis.
Liq. Sodii Silicatis.
Liq. Ammonii Acetatis.
Liquor Ferri Acetatis.
Liq. Ferri Chloridi.
Liq. Ferri Citratis.
Liq. Ferri Nitratis.
Liq. Ferri Subsulphatis.
Liq. Ferri Tersulphatis.
Liq. Hydrargyri Nitratis.
Liq. Potassii Citratis.
Liq. Potassii Arsenitis.
Liq. Sodæ Chloratæ.
Liq. Zinci Chloridi.
Liq. Gutta-Perchæ.

What are Mixtures?

Mixtures are preparations in which two or more *insoluble* substances are held in suspension by some vehicle.

How many Misturæ are officinal?

Eleven, viz.:—

Mistura Ammoniaci.
Mistura Asafœtidæ.
Mistura Amygdalæ.
Mistura Chloroformi.
Mistura Cretæ.
Mistura Ferri Composita.
Mistura Glycyrrhizæ Composita.
Mistura Magnesii et Asafœtidæ.
Mistura Ferri et Ammonii Acetatis.
Mistura Rhei et Sodæ.
Mistura Potassii Citratis.

Which of these is not correctly speaking a Mistura?

The Mistura Ferri et Ammonii Acetatis.

Why?

Because it does not contain any *insoluble* substance.

What should it be termed?

A Solution or Liquor.

What are Mucilages?

Mucilages are solutions of gummy substances in water.

How many are officinal?

Five, viz.:—

Mucilago Acaciæ.
Mucilago Cydonii.
Mucilago Sassafras Medullæ.
Mucilago Tragacanthæ.
Mucilago Ulmi.

What are Syrups?

Syrups are sugary liquids, the base of which is water, with the addition in some cases of vinegar or alcohol.

How many Syrups are officinal?

Thirty-four, viz.:—

Syrupus.
Syr. Acaciæ.
Syr. Acidi Citrici.
Syr. Acidi Hydriodici.
Syrupus Ipecacuanhæ.
Syr. Krameriæ.
Syr. Lactucarii.
Syr. Limonis.

Syr. Allii.
Syr. Altheæ.
Syr. Amygdalæ.
Syr. Aurantii.
Syr. Aurantii Florum.
Syr. Calcii Lactophosphatis.
Syr. Calcis.
Syr. Ferri Bromidi.
Syr. Ferri Iodidi.
Syr. Ferri Quininæ et Strychninæ Phosphatum.
Syr. Hypophosphitum.
Syr. Hypophosphitum cum Ferro.
Syr. Picis Liquidæ.
Syr. Pruni Virginianæ.
Syr. Rhei.
Syr. Rhei Aromaticus.
Syr. Rosæ.
Syr. Rubi.
Syr. Rubi Idæi.
Syr. Sarsaparillæ Compositus.
Syr. Scillæ.
Syr. Scillæ Compositus.
Syr. Senegæ.
Syr. Sennæ.
Syr. Tolutanus.
Syr. Zingiberis.

What are Honeys?

Mellita, or honeys, are preparations whose base is honey.

What are the officinal forms?

Mel, Mel Despumatum, Mel Rosæ.

What is Mel Despumatum?

Clarified Honey, *i.e.*, honey heated, skimmed, and strained.

What are Vinegars?

Vinegars, or Aceta, are preparations in which vinegar, or dilute Acetic Acid, is used as the menstruum?

What Vinegars are officinal?

Four, viz.:—

Acetum Lobeliæ.
Acetum Opii.
Acetum Sanguinariæ.
Acetum Scillæ.

What is their strength?

They represent the soluble principles of 10 per cent. of the drug.

What are Tinctures?

Tinctures are alcoholic solutions of *non-volatile* substances.

Is there any exception to this rule?

Yes. Tincture of Iodine, which contains a *volatile* principle.

How many Tinctures are officinal?

Seventy-two, viz.:—

Tinctura Aconiti.
Tinc. Alöes.
Tinc. Alöes et Myrrhæ.
Tinc. Arnicæ Florum.
Tinc. Arnicæ Radicis.
Tinc. Asafœtidæ.
Tinc. Aurantii Amari.
Tinc. Aurantii Dulcis.
Tinc. Belladonnæ.
Tinc. Benzoini.
Tinc. Benzoini Composita.
Tinc. Bryoniæ.
Tinc. Calendulæ.
Tinc. Calumbæ.
Tinc. Cannabis Indicæ.
Tinc. Cantharidis.
Tinc. Capsici.
Tinc. Cardamomi.
Tinc. Cardamomi Composita.
Tinc. Catechu Composita.
Tinc. Chiratæ.
Tinc. Cimicifugæ.
Tinc. Cinchonæ.
Tinc. Cinchonæ Composita.
Tinc. Cinnamomi.
Tinc. Colchici.
Tinc. Conii.
Tinc. Croci.
Tinc. Cubebæ.
Tinc. Digitalis.
Tinc. Ferri Acetatis.
Tinc. Ferri Chloridi.
Tinc. Gallæ.
Tinc. Gelsemii.
Tinc. Gentianæ Composita.
Tinc. Guaiaci.
Tinctura Guaiaci Ammoniata.
Tinc. Humuli.
Tinc. Hydrastis.
Tinc. Hyoscyami.
Tinc. Ignatiæ.
Tinc. Iodi.
Tinc. Ipecacuanhæ et Opii.
Tinc. Kino.
Tinc. Krameriæ.
Tinc. Lavandulæ Composita.
Tinc. Lobeliæ.
Tinc. Matico.
Tinc. Moschi.
Tinc. Myrrhæ.
Tinc. Nucis Vomicæ.
Tinc. Opii.
Tinc. Opii Camphorata.
Tinc. Opii Deodorata.
Tinc. Physostigmatis.
Tinc. Pyrethri.
Tinc. Quassiæ.
Tinc. Rhei.
Tinc. Rhei Aromatica.
Tinc. Rhei Dulcis.
Tinc. Sanguinariæ.
Tinc. Saponis Viridis.
Tinc. Scillæ.
Tinc. Serpentariæ.
Tinc. Stramonii.
Tinc. Sumbul.
Tinc. Tolutana.
Tinc. Valerianæ.
Tinc. Valerianæ Ammoniata.
Tinc. Vanillæ.
Tinc. Veratri Viridis.
Tinc. Zingiberis.

What are Spirits?

Spirits, or Spiritus, are alcoholic solutions of *volatile* substances.

How many are officinal?

Twenty-two, viz.:—

Spiritus Ætheris.
Spiritus Ætheris Compositus.
Spiritus Ammoniæ Aromaticus.
Spiritus Anisi.
Spiritus Aurantii.
Spiritus Camphoræ.
Spiritus Chloroformi.
Spiritus Cinnamomi.
Spiritus Gaultheriæ.
Spiritus Juniperi.
Spiritus Juniperi Compositus.
Spiritus Lavandulæ.
Spiritus Myrciæ.
Spiritus Myristicæ.
Spiritus Odoratus.
Spiritus Limonis.
Spiritus Menthæ Piperitæ.
Spiritus Menthæ Viridis.
Spiritus Ammoniæ.
Spiritus Ætheris Nitrosi.
Spiritus Frumenti.
Spiritus Vini Gallici.

What are Wines?

Wines, or Vina, are liquid preparations whose menstruum is White Wine, or Vinum Album Fortius.

How many are officinal?

Fourteen, viz.:—

Vinum Album.
Vinum Album Fortius.
Vinum Aloes.
Vinum Antimonii.
Vinum Aromaticum.
Vinum Colchici Radicis.
Vinum Colchici Seminis.
Vinum Ergotæ.
Vinum Ferri Amari.
Vinum Ferri Citratis.
Vinum Ipecacuanhæ.
Vinum Opii.
Vinum Rhei.
Vinum Rubrum.

What are Glycerites?

Glycerites, or Glycerita, are mixtures of medicinal substances with Glycerine.

How many are officinal?

Only two,—Glyceritum Amyli and Glyceritum Vitelli.

What are Fluid Extracts?

Fluid Extracts are liquid alcoholic solutions of a definite strength, one minim being supposed to represent a grain of the principle of the drug.

How many officinal Fluid Extracts are there?

Seventy-nine, viz.:—

Extractum Aconiti Fluidum.
Ext. Arnicæ Radicis Fl.
Ext. Aromaticum Fl.
Ext. Aurantii Amari Fl.
Ext. Belladonnæ Fl.
Ext. Brayeræ Fl.
Ext. Buchu Fl.
Ext. Calami Fl.
Ext. Calumbæ Fl.
Ext. Cannabis Indicæ Fl.
Ext. Capsici Fl.
Ext. Castaneæ Fl.
Ext. Chimaphilæ Fl.
Ext. Chiratæ Fl.
Ext. Cimicifugæ Fl.
Ext. Cinchonæ Fl.
Ext. Colchici Radicis Fl.
Ext. Colchici Seminis Fl.
Ext. Conii Fl.
Ext. Cornus Fl.
Ext. Cubebæ Fl.
Ext. Cypripedii Fl.
Ext. Digitalis Fl.
Ext. Dulcamaræ Fl.
Ext. Ergotæ Fl.
Ext. Erythroxyli Fl.
Ext. Eucalypti Fl.
Ext. Eupatorii Fl.
Ext. Frangulæ Fl.
Ext. Gelsemii Fl.
Ext. Gentianæ Fl.
Ext. Geranii Fl.
Ext. Glycyrrhizæ Fl.
Ext. Gossypii Radicis Fl.
Ext. Grindeliæ Fl.
Ext. Guaranæ Fl.
Ext. Hamamelidis Fl.
Ext. Hydrastis Fl.
Ext. Hyoscyami Fl.
Ext. Ipecacuanhæ Fl.
Extractum Iridis Fl.
Ext. Krameriæ Fl.
Ext. Lactucarii Fl.
Ext. Leptandræ Fl.
Ext. Lobeliæ Fl.
Ext. Lupulini Fl.
Ext. Matico Fl.
Ext. Mezerei Fl.
Ext. Nucis Vomicæ Fl.
Ext. Pareiræ Fl.
Ext. Pilocarpi Fl.
Ext. Podophylli Fl.
Ext. Pruni Virginianæ Fl.
Ext. Quassiæ Fl.
Ext. Rhei Fl.
Ext. Rhois Glabræ Fl.
Ext. Rosæ Fl.
Ext. Rubi Fl.
Ext. Rumicis Fl.
Ext. Sabinæ Fl.
Ext. Sanguinariæ Fl.
Ext. Sarsaparillæ Co. Fl.
Ext. Sarsaparillæ Fl.
Ext. Scillæ Fl.
Ext. Scutellariæ Fl.
Ext. Senegæ Fl.
Ext. Sennæ Fl.
Ext. Serpentariæ Fl.
Ext. Spigeliæ Fl.
Ext. Stillingiæ Fl.
Ext. Stramonii Fl.
Ext. Taraxaci Fl.
Ext. Tritici Fl.
Ext. Uva Ursi Fl.
Ext. Valerianæ Fl.
Ext. Veratri Viridis Fl.
Ext. Viburni Fl.
Ext. Xanthoxyli Fl.
Ext. Zingiberis Fl.

What are Oleoresins?

Concentrated liquid preparations made with Stronger Ether.

How many are officinal?

Six, viz.:—

Oleoresina Aspidii.
Oleoresina Capsici.
Oleoresina Cubebæ.
Oleoresina Lupulini.
Oleoresina Piperis.
Oleoresina Zingiberis.

What are Elixirs?

They are sweet, aromatic, spirituous preparations.

How many are officinal?

Only one,—Elixir Aurantii.

What are Aquæ, or waters?

Waters are aqueous solutions of *volatile* principles.

What are the officinal waters?

Aqua.
Aqua Destillata.
Aqua Ammoniæ.
Aqua Ammoniæ Fortior.
Aqua Amygdalæ Amaræ.
Aqua Anisi.
Aqua Aurantii Florum.
Aqua Chlori.
Aqua Cinnamomi.
Aqua Creasoti.
Aqua Fœniculi.
Aqua Menthæ Piperitæ.
Aqua Menthæ Viridis.
Aqua Rosæ.
Aqua Camphoræ.

How are they principally made?

By percolation either through the powdered substance or through cotton impregnated with it.

What are the solid preparations of the United States Pharmacopœia?

Abstracts, Confections, Extracts, Masses, Powders, Pills, Resins, Triturations, Troches.

What are Abstracts?

Solid preparations prepared by evaporation of such strength that they represent twice the strength of the fluid extract.

How many are officinal?

Eleven, viz.:—

Abstractum Aconiti.
Abstractum Belladonnæ.
Abstractum Conii.
Abstractum Digitalis.
Abstractum Hyoscyami.
Abstractum Jalapæ.
Abstractum Podophylli.
Abstractum Senegæ.
Abstractum Valerianæ.
Abstractum Ignatiæ.
Abstractum Nucis Vomicæ.

What are Extracts?

Semi-solid preparations, obtained by evaporation in most cases, of an alcoholic solution of a drug.

How many are officinal?

Thirty-two, viz.:—

Extractum Aconiti.
Ext. Aloes Aquosum.
Ext. Arnicæ Radicis.
Ext. Belladonnæ Alcoholicum.
Ext. Cannabis Indicæ.
Ext. Cinchonæ.
Ext. Colchici Radicis.
Ext. Colocynthidis.
Ext. Colocynthidis Compositum.
Ext. Conii Alcoholicum
Ext. Digitalis.
Ext. Ergotæ.
Ext. Euonymi.
Ext. Gentianæ.
Ext. Glycyrrhizæ.
Extractum Hæmatoxyli.
Ext. Hyoscyami Alcoholicum.
Ext. Iridis.
Ext. Juglandis.
Ext. Krameriæ.
Ext. Leptandræ.
Ext. Malti.
Ext. Mezerei.
Ext. Nucis Vomicæ.
Ext. Opii.
Ext. Physostigmatis.
Ext. Podophylii.
Ext. Quassiæ.
Ext. Rhei.
Ext. Stramonii.
Ext. Taraxaci.
Ext. Glycyrrhizæ Purum.

What are Confections?

Semi-solid preparations of medicinal substances made with honey, water, and sugar.

How many are officinal?

Only two,—Confection of Rose and Confection of Senna.

What Masses are officinal?

Massa Copaibæ, Massa Ferri Carbonatis, and Massa Hydrargyri.

What is their composition?

A medicinal substance and an excipient to make an adhesive mass.

What are Pills?

Spherical masses of one or more medicinal substances, with some excipient.

What Pills are officinal as such in the United States Pharmacopœia?

Pilulæ Aloes.
Pilulæ Aloes et Asafœtidæ.
Pilulæ Aloes et Ferri.
Pilulæ Aloes et Mastiches.
Pilulæ Aloes et Myrrhæ.
Pilulæ Antimonii Compositæ.
Pilulæ Asafœtidæ.
Pilulæ Catharticæ Compositæ.
Pilulæ Ferri Compositæ.
Pilulæ Ferri Iodidi.
Pilulæ Galbani Compositæ.
Pilulæ Opii.
Pilulæ Phosphori.
Pilulæ Rhei.
Pilulæ Rhei Compositæ.

What Powders are officinal?

Pulvis Antimonialis.
Pulv. Aromaticus.
Pulv. Cretæ Compositus.
Pulv. Effervescens Compositus.
Pulvis Glycyrrhizæ.
Pulv. Ipecacuanhæ et Opii.
Pulv. Jalapæ Compositus.
Pulv. Morphinæ Compositus.
Pulv. Rhei Compositus.

What are Resins?

Solid preparations of resinous principles which are insoluble in water.

How many are officinal?

Four, viz.:—

Resina Copaibæ.
Resina Jalapæ.
Resina Podophylli.
Resina Scammonii.

What are Troches?

Flattened pellets or disks containing a medicinal substance and pleasantly tasting excipient.

How many are officinal?

Sixteen, viz.:—

Trochisci Acidi Tannici.
Trochisci Ammonii Chloridi.
Trochisci Catechu.
Trochisci Cretæ.
Trochisci Cubebæ.
Trochisci Ferri.
Trochisci Glycyrrhizæ et Opii.
Trochisci Ipecacuanhæ.
Trochisci Krameriæ.
Trochisci Magnesiæ.
Trochisci Menthæ Piperitæ.
Trochisci Morphinæ et Ipecac.
Trochisci Potassii Chloratis.
Trochisci Sodii Bicarbonatis.
Trochisci Sodii Santoninatis.
Trochisci Zingiberis.

What excipients are principally used in their manufacture?

Tragacanth, Sugar, Vanilla, Syrup of Tolu, Oil of Anise, Oil of Sassafras, Acacia, Syrup of Orange, Spirits of Lemon, etc.

What are Triturations?

Powders containing 10 parts of the ingredient medicinal substance and 90 of Sugar of Milk.

What is Sugar of Milk?

Whey clarified with white of eggs and evaporated to crystallization.

What Triturations are officinal?

Trituratio Elaterini and Dover's Powder.

What is the composition of Dover's Powder?

Ten grains contain 8 grains of Sugar of Milk, 1 grain of Opium, and 1 grain of Ipecacuanha.

What are Emulsions?

Mixtures containing an oil or resin in very small particles and held in suspension in water by the aid of some excipient.

What are the principal excipients used for this purpose?

Mucilage of Acacia, Mucilage of Tragacanth, Yolk of Egg, Tincture of Senega, Tincture of Quillaia, Milk, etc.

What are Suppositories?

Solid cone-shaped masses for introducing medicinal agents into the vagina, rectum, or urethra.

With what are they generally prepared?

Oil of Theobroma, or Cacao-Butter.

What are Ointments?

Fatty mixtures of medicinal agents having a melting point below the ordinary normal temperature of the body.

What are the officinal Ointments?

Unguentum.
Unguentum Acidi Carbolici.
Unguentum Acidi Gallici
Unguentum Acidi Tannici.
Unguentum Aquæ Rosæ.
Unguentum Belladonnæ.
Unguentum Chrysarobini.
Unguentum Diachylon.
Unguentum Gallæ.
Unguentum Hydrargyri.
Unguentum Hydrargyri Ammoniati.
Unguentum Hydrargyri Nitratis.
Unguentum Hydrargyri Oxidi Flavi.
Unguentum Hydrargyri Oxidi Rubri.
Unguentum Iodi.
Unguentum Iodoformi.
Unguentum Mezerei.
Unguentum Picis Liquidæ.
Unguentum Plumbi Carbonatis.
Unguentum Plumbi Iodidi.
Unguentum Potassii Iodidi.
Unguentum Stramonii.
Unguentum Sulphuris.
Unguentum Sulphuris Alkalinum.
Unguentum Veratrinæ.
Unguentum Zinci Oxidi.

How is simple Ointment made?

By fusing 80 parts of lard with 20 of wax.

How is Benzoinated Lard prepared?

By incorporation of 2 per cent. of powdered Benzoin in lard.

What are Cerates?

Ointments of firm consistency owing to the addition of wax.

What Cerates are officinal?

Ceratum; Ceratum Camphoræ.

What is Ceratum?

A mixture of 30 parts of lard and 70 of wax.

What Plasters are officinal?

Emplastrum Ammoniaci.
Emplastrum Ammoniaci cum Hydrargyro.
Emplastrum Arnicæ.
Emplastrum Asafœtidæ.
Emplastrum Belladonnæ.
Emplastrum Capsici.
Emplastrum Ferri.
Emplastrum Galbani.
Emplastrum Hydrargyri.
Emplastrum Ichthyocollæ.
Emplastrum Opii.
Emplastrum Picis Burgundicæ
Emplastrum Picis Canadensis.
Emp. Picis cum Cantharide.
Emplastrum Plumbi.
Emplastrum Resinæ.
Emplastrum Saponis.

What are Chartæ?

Chartæ are papers impregnated with medicinal substances.

How many are officinal?

Three,—Chartæ Cantharidis, Sinapis, and Potassii Nitratis.

What are Liniments?

Solutions of various substances in oily liquids.

What Liniments are officinal?

Linimentum Ammoniæ.
Linimentum Calcis.
Linimentum Camphoræ.
Lin. Plumbi Subacetatis.
Linimentum Cantharidis.
Linimentum Belladonnæ.
Linimentum Chloroformi.
Linimentum Saponis.
Linimentum Sinapis Comp.
Linimentum Terebinthinæ.

What are Collodions?

Solutions of Pyroxyline in Ether and Alcohol.

How many are officinal?

Four, viz.:—

Collodium.
Collodium cum Cantharide.
Collodium Flexile.
Collodium Stypticum.

How are they applied?

In the form of a paint by means of a brush.

What is the composition of Styptic Collodion?

Tannic Acid, 20 per cent.; Collodion, 55; Ether, 20; Alcohol, 5.

What are Oleates?

Solutions of Salts or Alkalies in Oleic Acid.

How many are officinal?

Two,—Oleatum Hydrargyri and Oleatum Veratrinæ.

RULES FOR DOSAGE.

By what circumstances are we guided in the selection of appropriate doses?

By the age, sex, temperament, habit, and idiosyncrasies of the patient.

How does age modify the size of the dose?

The dose should be in direct proportion to the age.

What is Dr. Young's rule for estimating the appropriate dose for a child?

Add twelve to the age and divide the age by the result. The fraction so obtained represents the proportion to the regular adult dose.

What would thus be the proper dose for a child one year old?

Twelve plus one = 13; $\frac{1}{13}$th being the proper fraction.

For a child of three?

$12 + 3 = 15$; $\frac{3}{15} = \frac{1}{5}$.

What is Dr. Cowling's rule?

Divide its age on the following birthday by 24.

How would you thus ascertain the appropriate dose for a child one year old?

Its age the following birthday would be two. This divided by 24 gives $\frac{2}{24}$ or $\frac{1}{12}$ as the proper proportion.

Can these rules be adhered to strictly?

No. They must be modified to suit particular cases.

What caution should be observed in the administration of narcotics?

Children bear opiates extremely badly, and the above proportions must be considerably reduced when administering narcotics to them.

How does sex affect the dose?

Women are less vigorous and more easily affected than men. Consequently they should be given smaller doses.

How does habit affect the dose?

Persons habituated to the use of a drug require much larger doses to produce an effect than ordinary individuals not so habituated.

What do you understand by idiosyncrasies?

Peculiarities in the disposition of some persons toward certain drugs.

Give some examples.

Opium in any of its forms is intolerable to some persons, the smallest doses causing great depression and violent vomiting. Belladonna cannot be taken by others. Iodide of Potassium causes in some a violent coryza. Some persons are very easily cinchonized. In the same category fall those peculiarities exhibited by some constitutions toward certain household articles, such as butter, rice, strawberries, etc.

When do substances act quickest?

When given on an empty stomach.

What substances should not be administered on an empty stomach?

Those which are irritating to the stomach-walls, such as Iron, Arsenic, Iodine, etc.

How does the time of administration affect the action of medicines?

If the stomach is empty its walls are more likely to receive the local action of the remedy. If full, the drug is more likely to pass out with the food into the alimentary tract, and its constitutional effect to be exerted.

What substances are best given in pill form?

Those which are intended to act slowly and to influence the lower bowel. Heavy and insoluble substances, and substances which, like asafœtida, have a very disagreeable taste and odor.

What class of substances are unsuited for pilular form?

Substances which have to be given in large doses; substances which are intended to act immediately; deliquescent and efflorescent salts.

What substances are chiefly used to give consistency to pills?

Bread-crumb, Soap, Confection of Rose, Tragacanth, Liquorice, etc.

What should be the limit in size to a pill.

Four grains.

What disadvantages are there in pills of extreme sizes?

If they are *too small* they are apt to lodge in the posterior pharynx, from which they have to be extricated with great trouble, or if *too large* they are swallowed only with great difficulty.

How may the disagreeable taste of remedies administered in pill form be obviated?

By coating the pills with Sugar, Gold-foil, Silver-leaf, Gelatin, or Balsam of Tolu.

What substances are suitable for administration in powder?

Insoluble substances; substances which, if combined in solution, would give rise to a pharmaceutical incompatibility; pleasantly tasting substances, and substances intended to act on the contents or walls of the stomach.

What oils are used for flavoring medicinal preparations?

The oils of Clove, Nutmeg, Cinnamon, Winter-Green, and Sassafras.

What tinctures are agreeable additions to extemporaneous preparations?

The compound tinctures of Gentian and Cardamom, and the simple tinctures of Sweet Orange, Vanilla, Cinnamon, Cardamom, and Ginger.

What syrups make the most elegant vehicles?

Simple Syrup, Syrup of Acacia, and the Syrups of Orange, Lime, Ginger, Sarsaparilla, and others of the same order.

How may substances of disagreeable odor and taste be best administered?

In capsules of gelatin, which are dissolved by the action of the gastric juice.

INCOMPATIBLES.

List of substances chemically and pharmaceutically incompatible with the more important drugs of the United States Pharmacopœia, alphabetically arranged:—

Acacia: Alcohol, nitric acid, chloride of iron, liquor plumbi subacetatis.

Acidum Aceticum: Alkalies, alkaline and earthy carbonates.

Acidum Arseniosum: Astringents, salts of iron, lime, magnesium.

Acidum Gallicum : Lime-water, salts of copper and lead, nitrate of silver, tartar emetic, opium, alkaline carbonates.

Acidum Hydrochloricum : Alkalies and their carbonates ; salts of lead, silver, and mercury ; oxides and carbonates of the metals.

Acidum Hydrocyanicum : Mineral acids, salts of the metals, oxides of mercury.

Acidum Nitricum : Oxides and carbonates, oils, acacia.

Acidum Nitromuriaticum : Alkalies, oxides, earths.

Acidum Phosphoricum : Salts of calcium, barium, lead, quinine.

Acidum Salicylicum : Mineral acids, salts of the metals, and preparations of iron.

Acidum Sulphuricum : Alkalies and their carbonates, the earths, sulphurets, salts of lime and lead.

Acidum Tannicum : Albumin, gelatin ; salts of iron, antimony, lead, and silver ; alkalies, carbonates, alkaline earths, tartar emetic, acetate of lead, mineral acids.

Acidum Tartaricum : Alkalies and their carbonates.

Alumen : Alkalies and their carbonates, lime, magnesia, lead acetate.

Ammonia : Acids, salts, alum.

Ammonii Acetatis Liquor : Alkalies, strong acids, nitrate of silver, quinine ; alkaline earths, potash, soda and their carbonates ; salts of lead, metallic sulphates.

Ammonii Carbonas : Vegetable and mineral acids, caustic potash and soda, chloride of calcium, alum, magnesia, bichloride of mercury ; salts of iron, lead, and zinc ; acidulous salts.

Ammonii Chloridum : Acids, soda, salts of lead and silver, the carbonates, lime, alkaline earths.

Anthemis : Gallic acid, salts of iron and lead, bichloride of mercury, nitrate of silver.

Antimonii et Potassii Tartras : Strong acids, alkalies, the earths, carbonates, lime-water, calcium chloride, salts of lead, soaps, tannic and gallic acids.

Antimonii sulphuretum : Nitric and nitromuriatic acids.

Argenti Nitras : Acidum muriaticum, lime, the phosphates, iodides bromides, soluble chlorides, the astringent infusions, alkalies and their carbonates.

Arnica : Mineral acids, sulphates of iron and zinc, lead acetate.

Arsenicum : Astringents, salts of iron, lime, and magnesium.

Atropia : Caustic alkalies.

Aurantii Cortex : Lime-water, sulphate of iron.

Barii Chloridum : Sulphates, phosphates, and carbonates, nitrate of silver.

Belladonna : Vegetable astringents, tannic acid, caustic alkalies.

Benzoinum : Acids and alkalies.

Bismuthi Subnitras : Alkalies.

Bromides: Acids, acidulous and metallic salts.
Calamus: Acetate of lead.
Calcii Carbonas: Acids and their salts, alum, chloride of ammonium.
Calcis Liquor: Acids, sulphates of iron, zinc, and magnesium; nitrate of silver, vegetable astringents, chloride of ammonium.
Calumba: Mineral acids, lime-water, ammonia, nitrate of silver, chloride of iron, acetate of lead.
Camphor: Alkaline and earthy salts, water (when in spirituous solution).
Cannabis Indica: Acids and caustic alkalies.
Capsicum: Sulphates of iron, zinc, and copper; acetate of lead, nitrate of silver.
Cardamomum: Acids, ferri sulphas.
Caryophyllus: Tartar emetic, sulphates of iron and zinc.
Cascarilla: Lime-water, sulphates of iron and zinc, infusions of gallic acid, tannic acid.
Cassia Fistula: Alcohol.
Castanea: Mineral acids, alkalies, vegetable alkaloids; salts of silver, lead, iron, and antimony.
Catechu: Alkalies, salts of iron.
Chloral: Alkalies (producing formic acid).
Cimicifuga: Salts of iron.
Cinchona: Strong acids, alkalies, sulphates of iron and zinc, tartar emetic, nitrate of silver, lime, magnesia, tincture of iodine, tannic acid.
Coca: Metallic salts and mineral acids.
Colchicum: Acids, tannic acid.
Colocynth: Sulphate of iron, nitrate of silver, lead acetate.
Conium: Strong acids, alkalies, tannic and gallic acids.
Copaiba: Mineral acids.
Coptis: Nitrate of silver, acetate of lead.
Creta: Acids, alum, chloride of ammonium.
Cupri Sulphas: Ammonia, bichloride of mercury, alkalies and their carbonates, nitrate of silver, acetate of lead, iodides, astringent vegetable infusions.
Curara: Caustic alkalies.
Digitalis: Tannic acid, vegetable astringents, sulphate and chloride of iron, acetate of lead, cinchona.
Ergot: Caustic alkalies and metallic salts.
Eucalyptus: Alkalies, mineral acids; salts of iron, mercury, lead, and zinc.
Ferri Carbonas and Subcarbonas: Mineral acids, vegetable astringents, and acidulous salts.
Ferri Chloridum: Alkalies and their carbonates, magnesium and calcium carbonates, vegetable astringents, acacia.

Ferri Citras : Mineral acids, alkalies and their carbonates.
Ferri et Potassii Tartras : Vegetable astringents, alkalies, mineral acids.
Ferri Iodidum : Vegetable astringents, lime-water, alkalies and their carbonates, acids, acidulous salts.
Ferri Sulphas : Nitrate of silver, iodide of potassium, acetate of lead, vegetable astringents, nitric acid, alkalies and their carbonates.
Ferrum Ammoniatum : Astringent infusions, acids, lime-water.
Fowler's Solution : Vegetable astringents, sulphates, nitrate of silver, acids, chlorides, lime-water.
Galla : Salts of iron, zinc, and lead ; tartar emetic, bichloride of mercury, bismuth, alkalies and their carbonates, vegetable alkaloids
Gelsemium : The caustic alkalies and tannic acid.
Gentian : Sulphate of iron, salts of silver and lead.
Grindelia : Water (pp. the resin), mineral salts and caustic alkalies.
Guaiacum : Water, mineral acids, spirits of nitrous ether, salts of the metals.
Hæmatoxylon : Mineral acids, tartar emetic, sulphate of iron and copper, alum, acetate of lead.
Hydrargyri Chloridum Corrosivum : Iodide of potassium, nitrate of silver ; salts of iron, lead, and copper ; vegetable astringents, lime-water, alkalies and their carbonates, tartar emetic, albumin, red and black oxides of mercury, mineral and vegetable acids.
Hydrargyri Chloridum Mite : The alkalies, alkaline earths and carbonates, lime ; salts of iron, lead, and copper ; iodide of potassium, iodine, nitromuriatic acid.
Hydrargyri Iodidum Rubrum : Mineral acids, chlorides.
Hydrargyrum Ammoniatum : Acids and fixed alkalies.
Hydrargyrum Cum Creta : Acids, alum, acidulous salts.
Hydrastis : Alkalies, tannic and hydrochloric acids.
Hyoscyamus : Acetate of lead, tannic acid, vegetable astringents, sulphate of iron.
Iodinium : Starch, alkalies and alkaline earths, mineral acids, metallic salts, alkaloids.
Ipecacuanha : Vegetable astringents, salts of lead and mercury, vegetable acids, tannic acid.
Kino : Salts of iron, acetate of lead, mineral acids, tartar emetic.
Krameria : Salts of iron, acetate of lead, mineral acids.
Lobelia : Caustic alkalies.
Magnesia : Acids and acidulous salts, chloride of ammonium.
Magnesii Sulphas : Potassium, sodium and their carbonates, lime-water, acetate of lead, ammonia.
Manganum : Caustic alkalies ; salts of lead, silver, and mercury.

Mentha : Sulphate of iron, nitrate of silver, acetate of lead.
Morphinæ Acetas : Vegetable astringents, alkalies, carbonates, ammonium.
Morphinæ Murias : Acetate of lead, tannic acid, ammonia, alkaline carbonates.
Moschus : Mineral acids, sulphate of iron, bichloride of mercury, nitrate of silver.
Opium : Astringent vegetable infusions ; salts of lead, copper, iron, mercury, and zinc ; alkalies and their carbonates, nitrate of silver, acetate of lead, lime-water.
Physostigma : Vegetable astringents, tannic acid, caustic alkalies.
Pilocarpin : Caustic alkalies, salts of iron and of the metals generally.
Plumbi Acetas : Vegetable astringents, opium, mineral and vegetable acids, sulphates and chlorides of the alkalies and metals, alkalies and their carbonates, alum, borax, iodide of potassium.
Potassa : Acids, metallic salts, salts of ammonium.
Potassii Acetas : Mineral acids, tartaric acids, sulphates of sodium and magnesium, metallic and earthy salts.
Potassii Bitartras : Acids, lime-water, alkaline carbonates.
Potassii Bromidum : Salts of lead, silver, and mercury ; acid and acidulous salts.
Potassii Carbonas : Acids, calomel, metallic salts, sulphate of magnesium, alum.
Potassii Citras : Acids, calcium, lead and silver salts.
Potassii Iodidum : Acids, salts of the metals, acetate of lead.
Potassii Nitras : Alum, sulphates of magnesium and the metals.
Potassii Sulphas : Nitrate of silver, chloride of calcium, bichloride of mercury, tartaric acid, acetate of lead.
Potassii Tartras : Acids, lime-water acetate of lead, nitrate of silver, chloride of calcium.
Pulsatilla : Metallic salts, caustic alkalies and tannic acid
Quassia : Nitrate of silver, lead acetate.
Quininæ Sulphas : Lime-water, alkalies and their carbonates, phosphoric acid.
Rheum : Acids, tartar emetic, bichloride of mercury, sulphates of iron and zinc.
Rosa Gallica : Sulphates of iron and zinc, lime-water.
Salix : Sulphate of iron, lime water, alkaline carbonates.
Sanguinaria : Tannic acid, alkalies, metallic salts.
Sarsaparilla : Acetate of lead, alkalies, iodine.
Scilla : Acetate of lead, alkaline carbonates, nitrate of silver
Senna : Strong acids, tartar emetic, carbonates.
Sodii Carbonas : Lime-water, salts of the metals and earths, bitartrate of potash.

Sodii Phosphas: Mineral acids, earthy and metallic salts, lime, magnesium.
Sodii Sulphas: Carbonates and acetate of potassium.
Spiritus Ætheris Nitrosi: Alkaline and earthy carbonates, tincture of guaiacum, sulphate of iron
Strychnina: Bromides, iodides, chlorides.
Sulphides: Mineral acids.
Sulphites: Mineral acids and all oxidizing substances.
Taraxacum: Nitrate of silver, acetate of lead, infusion of galls, corrosive sublimate, sulphate of iron.
Ulmus: Alcoholic tinctures.
Uva Ursi: Tartar emetic, salts of iron.
Zinc Salts: Astringent infusions; potash, soda, ammonia, and their carbonates; lime-water, nitrate of silver.
Zinci Oxidum: Acids, potash, soda, and ammonia.
Zinci Valerianas: Acids, metallic salts, vegetable astringents.

CLASSIFICATION OF DRUGS RECOGNIZED BY THE UNITED STATES PHARMACOPŒIA.

ASTRINGENTS.

Vegetable Astringents: Acidum tannicum, acidum gallicum, gallæ, catechu, kino, hæmatoxylon, krameria, quercus alba, quercus nigra, rosa gallica, rosa centifolia, geranium, rhus glabra.
Mineral Astringents: Alum, plumbum, bismuth, cerii oxalas, zincum, cadmium, cuprum, argentum.

TONICS.

Simple Bitters: Quassia, gentian, nectandra, berberis, calumba, eupatorium, chiratа, cornus, scutellaria.
Peculiar Bitters: Prunus virginiana, cinchona, acidum picricum,
Aromatic Bitters: Anthemis, serpentaria, cascarilla, angustura,
True Aromatics: Cinnamomum, caryophyllus, myristica, macis, pimenta, cardamomum, zingiber, piper, cajuputum, capsicum, aurantium, limon, carum, fœniculum, coriandrum, anisum, lavandula, rosmarinus, salvia, mentha piperita, mentha viridis, melissa, calamus, eucalyptus, absinthium, hedeoma.
Mineral Tonics: Ferrum, acidum sulphuricum, acidum hydrochloricum, acidum nitricum, acidum nitromuriaticum, acidum lacticum, phosphorus.

CARDIAC STIMULANTS.

Ammonia, alcohol, terebinthinum, digitalis (strophanthus hispidus, adonidin, sparteïn—unofficinal).

REFRIGERANTS.

Acidum tartaricum, acidum citricum, acidum aceticum.

CARDIAC SEDATIVES.

Antimonium, veratrum viride, arnica, sabadilla, veratrum album, aconitum, acidum hydrocyanicum, potassii cyanidum.

ANTISPASMODICS.

Moschus, castoreum, valerianum, asafœtida, camphora, amber, spiritus ætheris compositus, humulus, lactucarium, cimicifuga, caffea, thea, mate, caffeina, galbanum, sumbul.

ANALGESICS.

Opium, morphina, cannabis indica.

MYDRIATICS.

Belladonna, atropina, hyoscyamus, stramonium.

ANÆSTHETICS.

Nitrous oxide, ether, chloroform, bichloride of methyl, bromide of ethyl.

EXCITO-MOTOR.

Strychnina.

DEPRESSO-MOTORS.

Physostigma, potassii bromidum, sodii bromidum, lithii bromidum, chloral, amyli nitris, potassii nitris, nitro-glycerin, amyli valerianas, lobelia, gelsemium, tabaca, conium.

ALTERATIVES.

Arsenicum, hydrargyrum, iodinum, iodoformum, oleum morrhuæ, acidum phosphoricum, colchicum, sarsaparilla, guaiacum, mezereum, sassafras.

EMETICS.

Vegetable Emetics: Ipecacuanha, sanguinaria, apomorphia, sinapis, scilla.

Mineral Emetics: Antimonium, zinci sulphas, cupri sulphas, alum.

CATHARTICS.

Laxatives: Tamarindus, cassia fistula, magnesia, sulphur, potassii sulphuretum, calcii sulphidum.

Purges: Oleum ricini, hydrargyrum, rheum, juglans, chrysarobinum, aloes, senna, euonymus.

Drastics: Scammonium, colocynthus, podophyllum, elaterium, gambogia, oleum tiglii, helleborus.

DIURETICS.

Hydragogue Diuretics: Scilla, digitalis, scoparius, spiritus ætheris nitrosi.

Refrigerant Diuretics: Potassii bicarbonas, potassii citras, potassii acetas, potassii sulphas, potassii nitras, potassii chloras, lithii carbonas, blatta.

Stimulating Diuretics: Buchu, pareira, uva ursi, pipsissewa, juniperus, erigeron, terebinthinum, copaiba, cubeba, matico, cantharides.

DIAPHORETICS.

Jaborandi, spiritus ætheris nitrosi.

EXPECTORANTS.

Lobelia, ipecacuanha, potassii et antimonii tartras.

STIMULATING EXPECTORANTS.

Ammonii chloridum, senega, benzoinum, acidum benzoicum, allium, scilla, balsamum peruvianum, balsamum tolutanum, pix liquida.

EMMENAGOGUES.

Sabina, ruta, petroselinum, apiol, cantharides, guaiacum, tanacetum.

OXYTOCICS.

Ergota, gossypium, ustilago.

SIALAGOGUE.

Pellitorium.

EPISPASTIC.

Cantharides.

RUBEFACIENTS.

Sinapis, terebinthinum, pix burgundica.

ESCHAROTICS.

Potassa, arsenicum, zinci chloridum, hydrargyri chloridum corrosivum, hydrargyri nitras, acidum chromicum, bromi-num.

DEMULCENTS.

Acacia, tragacanth, ulmus, cetraria, althæa, glycyrrhiza, sassafras.

EMOLLIENT.

Glycerinum.

PROTECTIVES.

Collodium, gutta-percha.

ANTACIDS.

Sodium, calcium.

ANTHELMINTICS.

Spigelia, azedarach, chenopodium, brayera, santonica, sodii santoninas, aspidium, pepo, terebinthinum, granatum, mucuna, kamala.

DIGESTANT.

Pepsinum.

ABSORBENT.

Charcoal.

DISINFECTANTS.

Potassii permanganas, chlorinum, iodinum, brominum, borax, acidum sulphurosum, acidum carbolicum, acidum salicylicum, salicin, thymol.

ASTRINGENTS.

What are astringents?

Drugs which contract—*astringere*, to bind together—tissues with which they come in contact.

How do they act?

By a direct local action.

Into what two classes are they divided?

Vegetable and mineral.

On what do the virtues of the vegetable astringents depend?

On the presence of Tannic Acid in one or other of its forms.

For what are the astringents used in medicine?

To overcome relaxation from whatever cause arising, to check excessive secretion, and to stop hemorrhage under certain circumstances.

How do astringents stop hemorrhage?

By coagulating albumin, and thus forming a clot.

What term is then applied to them?

They are said to be styptics.

What caution should be observed in the employment of astringents?

Their prolonged or concentrated use may give rise to inflammation.

In what cases of excessive secretion is their employment contra-indicated?

Where the secretion is the outcome of high inflammation, *e.g.*, in the out-pouring of serum which arises from colitis or enterocolitis.

On what tissues is the action of astringents principally manifested?

The alimentary tract, mucous membranes, and the organs to which they can be carried directly.

ACIDUM TANNICUM.

What are the physical appearances of Tannic Acid?

Tannic Acid is found in commerce in the form of light-yellowish feathery scales, having a faint, peculiar odor, and a bitter astringent taste.

In what is it soluble?

It is soluble in water and in Glycerin, somewhat soluble in dilute Alcohol, but wholly insoluble in absolute Alcohol and Ether.

What varieties of Tannic Acid are there?

Two,—Gallo-Tannic Acid and Kino-Tannic Acid.

How are they distinguished chemically?

Gallo-Tannic makes a *bluish*-black and Kino-Tannic a *greenish*-black color with Salts of Iron.

How is Tannic Acid prepared?

Powdered Nutgalls are exposed to a damp atmosphere for twenty-four hours, and then mixed with sufficient washed Ether to form a paste. After six hours this mixture is powerfully expressed and the expressed liquid evaporated on glass plates.

What reaction has Tannic Acid?

It is strongly acid.

What class of substances does it form with bases?

Tannates.

What effect has Tannic Acid on Lime-water?

It throws down a whitish precipitate, which finally becomes brown.

With what substances is Tannic Acid incompatible?

With Salts of Iron, causing a black coloration. With the Vegetable Alkaloids, Tartar Emetic, Acetate of Lead, throwing down whitish precipitates.

What effect has Tannic Acid on albumin?

It coagulates it.

What is the physiological action of Tannic Acid?

On unbroken skin Tannic Acid has no effect. On raw surfaces and mucous membranes it is a powerful astringent and irritant. Taken into the stomach it coagulates albumin, precipitates the peptones, and impairs digestion. On the intestinal tract it acts as an astringent, stopping secretion and causing constipation.

What becomes of Tannic Acid when taken into the stomach?

A portion is converted into Gallic Acid, and as such absorbed. A small portion, however, is absorbed unchanged.

What would be the effect of throwing Tannic Acid into a vein?

It would coagulate the albumin and form a thrombus.

How do you account for the injection of small quantities not being fatal?

In these cases a Tannate of Albumin is formed, and this is held in solution by the alkaline carbonates of the blood.

In what ways is Tannic Acid used?

Mainly as a local application.

What are its principal local uses?

As a local application it is used (1) to *tone up relaxed membranes*, as in sore throat, elongated uvula, and prolapsed hæmorrhoids, etc.; (2) to *check excessive secretion* of the lacrymal, salivary, and perspiratory glands; (3) to *arrest discharges* from the ear, nose, pharynx, intestinal tract, vagina and uterus, and from old abscesses; (4) to *stop hemorrhage* where its source can be reached directly, *e.g.*, in epistaxis, hæmatemesis, and intestinal hemorrhage; (5) to *harden exposed surfaces*, as in sore nipples and tender feet; and (6) in certain *skin diseases*, as eczema and impetigo, characterized by the discharge of purulent matter.

In what forms can these applications be made?

As a solution in Glycerin, as a gargle or spray with water, or mixed with Olive or Theobroma Oil in the form of suppositories.

What is the strength of the preparation known as Glycerite of Tannin?

Two troy ounces of Tannic Acid to half a pint of Glycerin.

What are the principal uses of this Glycerite of Tannin?

Applied to the mucous membrane of the nose it checks the discharge and removes the odor arising from ozæna. A few applications on cotton to the auditory meatus will sometimes arrest chronic otorrhœa. With the addition of a little Morphina it allays the harassing cough arising from an elongated uvula. In impetigo and eczema this is a convenient form of application.

With the addition of Carbolic Acid it checks the discharge of an ulcerated os uteri, and removes the stench of cancer of the womb.

Is Tannic Acid administered internally?

Yes, sometimes; but as it is converted into Gallic Acid in its passage through the economy the latter form is generally preferred for internal use.

To what is Tannic Acid an antidote?

Chiefly to Tartar Emetic. It is also generally antidotal to the poisonous alkaloids.

What preparations of Tannic Acid are officinal?

Unguentum Acidi Tannici (10 to 90 benzoinated lard).
Trochisci Acidi Tannici (tannic acid, gr. j; sugar, tragacanth, and orange-flower water).
Styptic Collodion (tannic acid 20, alcohol 5, stronger ether 20, and collodion 55 parts).

What is Collodion?

A solution of four parts of Pyroxylin in seventy parts of Stronger Ether and twenty-six parts of Alcohol.

How is Pyroxylin prepared?

By the action of Nitric and Sulphuric Acids on Gun-cotton.

ADMINISTRATION.

Mercurial Salivation.

℞ Acidi tannici, ... ℥j.
Mel rosæ, ... ℥ij.
Aquæ, ... f℥vj.
M. Sig.: Use as a gargle.

℞ Acidi tannici, ... ℥ij.
Spiritus vini rectificati, ... f℥j.
Misturæ camphoræ, ... ad f℥x.
M. Sig.: Use as a gargle.

Toothache.

℞ Acidi tannici, ... gr. xx.
Mastich, ... gr. x.
Etheris, ... f℥ss.
M. Sig.: Apply on cotton.

Collyria.

℞ Acidi tannici, ... gr. i–x.
Aquæ rosæ, ... f℥j.
M. Sig.: Eye-wash.

Gonorrhœa.

℞ Acidi tannici, ... gr. ii–x.
Tinct. iodinii, ... ♏v.
Aquæ, ... f℥j.
M. Sig.: As an injection.

Hæmorrhoids.

℞ Acidi tannici, ... ℥j.
Ext. opii aq., ... gr. x.
Cerati plumbi subacetatis, ... ℥j.
M. ft. unguentum.

℞ Pulv. gallæ, ... gr. xx.
Pulv. opii, ... gr. x.
Unguenti plumbi subacetatis, . . . ℥j.
Unguenti simplicis, ... ℥j.
M. ft. unguentum.

℞ Acidi tannici, ... gr. lx.
Olei theobrom., ... q. s.
M. ft. secundum artem suppositoria, XII.
M. Sig.: Introduce as directed.

ACIDUM GALLICUM.

Describe Gallic Acid.

Gallic Acid is a white, silky substance occurring in fine acicular crystals, of a slightly acid astringent taste.

In what is Gallic Acid soluble?

In a hundred parts of cold and three parts of boiling water. It is freely soluble in Alcohol and in Ether.

How is Gallic Acid prepared?

A decoction of Galls is exposed to the atmosphere in a loosely-covered vessel for some months. A peculiar fungus is developed, on the under surface of which and on the sides of the vessel Gallic Acid is deposited in the form of a coating. By the collection, dissolution,

and crystallization of this pellicle Gallic Acid is finally obtained.

How does Tannic Acid differ, in composition, from Gallic Acid?

Tannic Acid is said to be an Anhydride of Gallic Acid.

What chemical formula expresses this relation?

$$C_{14}H_{10}O_9\ (\text{Tannic Acid}) - 2C_7H_6O_5\ (\text{Gallic Acid}) = H_2O.$$

How does Gallic Acid differ, chemically, from Tannic Acid?

Gallic Acid *does not coagulate albumin*. Tannic Acid does. With Lime-water, Gallic Acid produces a precipitate turning blue; Tannic Acid, a precipitate becoming brown. With Sulphuric Acid, Gallic Acid strikes a deep-red color; Tannic Acid, a black.

How is Gallic Acid eliminated?

Through the kidneys.

How does Gallic Acid differ, physically, from Tannic Acid?

Gallic Acid is distinctly crystalline, while Tannic Acid is amorphous.

What is the physiological action of Gallic Acid?

It is an astringent similar to but less powerful than Tannic Acid.

What considerations influence you in the choice between Gallic and Tannic Acid?

For local uses Tannic Acid is to be preferred owing to its greater strength; when, however, the part has to be reached through the circulation, Gallic Acid is preferable because it does not coagulate albumin.

In what diseases is Gallic Acid used?

In hæmoptysis, hæmaturia, and the hemorrhagic diathesis; in the profuse expectoration of phthisis, bronchorrhœa, and chronic bronchial catarrh; in pyelitis, pyelonephritis, albuminuria, and desquamative nephritis; in chronic diarrhœa and colliquative sweats.

With what is Gallic Acid incompatible?

Lime-water, Acetate of Lead, Salts of Iron and Copper, Tartar Emetic, Alkalies and their Carbonates.

What is the officinal preparation of Gallic Acid?

Unguentum Acidi Gallici (1–9 Benzoinated Lard).

ADMINISTRATION.

Hemorrhage.

℞ Acidi gallici, ... ℥j.
Extract ergotinæ,
Digitalis, ... āā gr. xx.
M. ft. pil. No. XX.
Sig.: One every four hours.

Sweating of Phthisis.

℞ Acidi gallici, ... ℥ss.
Ext. belladonnæ, ... gr. ij.
M. ft. pil. No. X.
Sig.: Two pills at bed-time.

Pyelitis, Catarrh of the Bladder, etc.

℞ Acidi gallici, ... ℥j.
Spiritus vini rectificati, ... f℥j.
M. Sig.: A teaspoonful in water every four hours.

Albuminuria.

℞ Acidi gallici, ... ℥j.
Acidi sulphurici *dil.*, ... ℥ss.
Tinct. lupuli, ... f℥j.
Infus. lupuli, ... f℥vj.
M. Sig.: A tablespoonful three times a day.

Menorrhagia.

℞ Acidi gallici, ... ℥ss.
Acidi sulphurici *dil.*, ... f℥j.
Tinct. opii deodoratæ, ... f℥j.
Infus. rosæ comp., ... f℥iv.
M. Sig.: A tablespoonful every four hours.

Chronic Diarrhœa in a Child Two Years Old.

℞ Acidi gallici, ... gr. xij.
Tinct. cinnamom. comp., ... f℥iss.
Tinct. opii, ... ℥viij.
Aquæ carui, ... ad f℥ij.
M. Sig.: Two teaspoonfuls a dose.

GALLÆ.

What are Galls?

Vegetable excrescences found on various species of the oak formed by the deposition in the bark of the eggs of a fly,—the Cynips Tinctoria.

Describe them.

They are round bodies varying in size from a pea to a hickory-nut, and having a bitter, astringent taste.

How many varieties are there?

Two,—the Blue and the White.

How do these differ?

The Blue or Green Galls are solid bodies, either smooth or marked with rough tubercles, from which the young fly has not escaped. The White Galls are hollow, large, light bodies with a hole through which the young caterpillar has eaten its way out.

Which are the most valuable?

The Blue or Green Galls.

What are Galls used for in pharmacy?

As the source of Tannic Acid.

For what is Unguentum Gallæ used?

As an application to hæmorrhoids.

What preparations are recognized by the U. S. Pharmacopœia?

Unguentum Gallæ (1-9 benzoinated lard).
Tinctura Gallæ (galls 20, glycerin 10, diluted alcohol).

ADMINISTRATION.

℞ Calcii carbon. precip., ... ℥j.
Tinct. opii camph., ... f℥ss.
Tinct. lavandulæ comp., ... f℥ij.
Syrupi gallæ aromaticæ, ... f℥iss.
Syrupi acaciæ, ... f℥j.
M. Sig.: f℥j repeated every hour or two.

CATECHU.

What is Catechu?

An extract from the wood of an East Indian tree,—the Acacia Catechu.

How is it prepared?

The tree is cut down and boiled, and the liquid strained off and crystallized.

How is it found in commerce?

In small irregular fragments of a dull, reddish-brown color, and an astringent, sweetish taste.

What other names does it go by?

Tanners call it "Kutch." It has also been known as "Terra Japonica."

On what does its value depend?

The presence of Kino-Tannic Acid, and Catechuic Acid.

What is Gambir?

Gambir, or Pale Catechu, is the product of another tree, the "Uncaria Gambir," a climbing shrub of the West Indies.

What is it like?

It occurs in cubes about an inch in diameter; brown externally, but pale-yellowish within.

What are the uses of Catechu in medicine?

It is a powerful astringent, and used extensively in diarrhœa and dysentery.

What preparations are recognized by the U. S. Pharmacopœia?

Tinctura Catechu Composita (catechu 12, cinnamon 8, diluted alcohol to make 100 parts); dose, ℥x–f℥j.
Trochisci Catechu, gr. j each.

ADMINISTRATION.

Diarrhœa.

℞ Tinct. catechu, ... f℥j.
Tinct. opii, ... f℥j.
Pulv. acaciæ, ... ʒij.
Aquæ cinnamomi, ... f℥vj.
M. Sig.: A tablespoonful every two hours.

℞ Tinct. catechu, ... f℥ij.
Extracti hæmatoxyli, ... ʒiij.
Sacchari, ... ʒj.
Aquæ, ... ad f℥vij.
M. Sig.: A tablespoonful to be given once in three hours.

Cholera Mixture.

℞ Pulveris aromatici, ... ʒiij.
Tincturæ catechu, ... f℥x.
Tinct. cardamomi comp., ... f℥vj.
Tinct. opii, ... f℥j.
Misturæ cretæ, ... ad f℥xx.
M. Sig.: Two tablespoonfuls for an adult after each evacuation. —London Board of Health.

Compound Chalk Mixture.

℞ Misturæ cretæ, ... f℥v.
Tinct. catechu,
Tinct. opii camph., ... āā f℥ss.
M. Sig.: A tablespoonful every three hours.

KINO.

What is Kino?

The inspissated juice of the Pterocarpus Marsupium, and different plants.

How is it obtained?

The juice is simply dried by exposure to the sun.

Where is it found?

In the East and West Indies, Botany Bay, and Africa.

On what do its virtues depend?

On Kino-Tannic Acid.

Describe Kino.

Kino occurs in irregular, angular pieces, reddish in color, and having a bitterish, highly astringent, and subsequently sweetish taste.

What are its uses?

It is a powerful astringent, and is much used in the treatment of diarrhœa and other discharges, and as a local application in gonorrhœa, to indolent ulcers, etc.

What are the officinal preparations?

Pulv. Kino; dose, ... gr. xx–xxx.
Tinctura Kino (1–10); dose, . . ℥j.

ADMINISTRATION.

Diarrhœa or Hemorrhage of the Bowels.

℞ Pulv. kino, ... 15 parts.
Pulv. opii, ... 1 part.
Pulv. cinnamomi, ... 4 parts.
Mix. Dose, gr. v–xx.

—British Pharmacopœia.

℞ Pulv. kino, ... gr. xx.
Pulv. opii, ... gr. ij.
Mucilaginis acaciæ, ... q. s.
M. ft. pil. No. IV.
Sig.: One every four hours.

KRAMERIA (RHATANY).

What is Krameria?

The root of the Krameria Triandra, a small shrub growing in Peru.

Describe the root.

As found in our markets it occurs in dark-colored pieces varying in length from six inches to three feet.

The bark is easily separated, and is of a deep-red color; the wood itself is lighter in hue.

On what does its value depend?

Kino-Tannic Acid.

What else does it contain?

An odorous principle,—wax, gum, etc.

In what portion is there most Tannic Acid?

In the bark.

How is Krameria used in medicine?

It is a powerful astringent, but is never administered in powder.

In what form is it chiefly given?

As the tincture.

What preparations are officinal?

Extractum Krameriæ; dose, . .	gr. v–x.
Tinctura Krameriæ; dose, . .	ℳ v–fʒj.
Extractum Krameriæ Fluidum; dose,	ℳ v–fʒss.

ADMINISTRATION.

Trochisci Krameriæ. U. S. P.

℞ Extracti krameriæ, ...		gr. c.
Sacchari, ...		gr. m.
Tragacanthi, ...		gr. xxv.
Aquæ aurantii florum, . . .		q. s.

M. ft. trochisci, 100.

Gargle.

℞ Pulv. krameriæ,		
Pulv. cinnamomi, . . .	āā	ʒj.
Aquæ bullientis, ...		fʒvij.

Macerate for two hours.

Add

Sacchari, ...	ʒij.

Fiat gargarysma.

Dysentery.

℞ Extracti krameriæ, ...		ʒj.
Syrupi rubi,		
Aquæ rosæ, ...	āā	ʒij.

M. S.: Teaspoonful for a dose.

Hæmorrhoids.

℞ Extracti krameriæ, ... gr. xl.
Pulv. opii, ... gr. v.
Olei theobromæ, ... ℥ss.
M. ft. suppositoria No. X.

QUERCUS.

What variety of the Oak is recognized by the United States Pharmacopœia?

The Quercus Alba, or white oak.

What part of the tree is used?

Only the bark.

On what does its virtue depend?

On Gallo-Tannic Acid.

How is it employed in medicine?

Generally as an external application in the form of astringent baths, vaginal washes, etc. Preparation: Decoctum Quercus Albæ, one ounce to a pint of boiling water.

ADMINISTRATION.

℞ Decocti quercus albæ, ... Oj.
Aluminis, ... ℥ss.
Spiritus vini gallici, ... f℥ij.
M. S.: Gargle.

ROSES.

What varieties of Rose are recognized by the U. S. Pharmacopœia?

Two,—the "Rosa Centifolia," or pale rose, and the "Rosa Gallica," or red rose.

For what are their preparations used in medicine?

Principally as vehicles for other agents, or to give an agreeable flavor to extemporaneous preparations.

Which Rose contains most Tannic Acid?

The Rosa Gallica, or red rose.

What preparations are made from the Red Rose?

Extractum Rosæ Fluidum; dose, . . ℥v–℥ij.
Confectio Rosæ (red rose 8, sugar 64, honey 12, rose-water 16).
Mel Rosæ (honey of roses),—red rose 8, honey 92, diluted alcohol to 100 parts.
Syrupus Rosæ (ext. 10 parts to 90); dose, . f℥i–ij.

What preparations are made from the Rosa Centifolia?

Aqua Rosæ, or Rose-water; *Unguentum Aquæ Rosæ*, or Cold Cream.

Into what other preparations do Roses enter?

The Pale Rose is an ingredient of the Compound Syrup of Sarsaparilla, and the Red Rose of the "Pilula Aloes et Mastiches."

What is the composition of Cold Cream?

Expressed Oil of Almonds 50 parts, Spermaceti 10, White Wax 10, Rose-water 30.

For what is Rose-water used?

As an agreeable excipient for lotions, urethral injections, and eye-washes.

ADMINISTRATION.

Cold Cream.

℞ Oil of sweet almonds, ... f℥ij.
Spermaceti, ... ℥vj.
Glycerin, ... f℥iv.
Oil of roses,
Oil of bergamot, ... āā gtt. ij.

Melt the spermaceti with a gentle heat, stir in the oil of almonds gradually, remove the mixture from the fire, stir constantly, adding the glycerin, and finally incorporate the volatile oils.

GERANIUM (CRANESBILL).

What part of Geranium is officinal?

The rhizome of the Geranium Maculatum.

How is it found in the market?

In small, rough pieces of a dark-brown color externally; flesh colored within. It has no odor. Its taste is astringent.

What does it contain?

Tannic and Gallic Acids, Resin, Gum, Starch, etc.

What preparation is recognized by the U. S. Pharmacopœia?

Extractum Geranii Fluidum; dose ♏x–xxx.

For what is it used?

As a mild astringent.

What is the dose of powdered Geranium?

Gr. xx–xxx.

RHUS GLABRA (SUMACH).

What preparation of Sumach is used in medicine?

Extractum Rhois Glabræ Fluidum.

How is it prepared?

By exhausting powdered berries with diluted alcohol, reserving the first six ounces, evaporating the remainder to six ounces, and then mixing these two with sugar.

On what does its value depend?

On the presence of Tannic Acid and the Bimalate of Calcium.

What are its uses in medicine?

Solely as a gargle in sore throat, and in mercurial sore mouth.

RUBUS VILLOSUS (BLACKBERRY).

Under what names is Blackberry officially recognized?

Under the title of Rubus Villosus and Rubus Canadensis.

In what forms is Blackberry used in medicine?

In the *Syrupus Rubi* and *Extractum Rubi Fluidum*, ♏x–f℥ij., and Syrupus Rubi Aromaticus, which is unofficinal.

What is the strength of the Aromatic Syrup?

Each f℥j contains gr. xxx of the drug.

From what part of the bush are these preparations made?

From the bark.

What are their therapeutic properties?

They are strongly astringent.

ADMINISTRATION.

℞ Syrupi rubi, ... f℥ij.
Spiritus lavandulæ comp., ... f℥ij.
Aquæ cinnamomi, ... f℥vj.
Aquæ, ... f℥j.
M. Sig.: A teaspoonful for a child.

ALUM.

What is Alum?

A double sulphate of Aluminium and Potassium, or of Aluminium and Ammonium.

Which is the officinal variety?

The former.

How can Ammonia Alum be detected?

By rubbing the specimen up with Lime, when the odor of Ammonia will be evolved.

What are the physical properties of Alum?

It occurs in octahedral colorless crystals, with an astringent, acidulous, sweetish taste.

In what is Alum soluble?

In water and boiling water, but not in Alcohol.

What is the physiological action of Alum?

Taken into the mouth, it provokes an excessive flow of saliva, and coagulates the albumin and mucus of the

buccal cavity, thus diminishing secretion, and, when swallowed, causing dryness of the throat and constipation. In doses of a teaspoonful it is emetic.

What are its systemic effects?

When admitted to the circulation it acts as an astringent to the blood-vessel walls, diminishing their calibre and blanching mucous membranes.

What is the effect of large doses internally?

It causes violent gastro-enteritis, with nausea, vomiting, purging, and abdominal pain.

What effect has Alum on the tissues when applied locally?

It is a powerful astringent and irritant.

What is the objection to its use as a gargle?

It acts destructively on the teeth.

What are the external uses to which Alum is put?

It is used as a styptic to arrest hemorrhage; applied by the atomizer, it is useful in hæmoptysis and bronchorrhœa. Ulcers of the mouth are improved by being touched with a crystal of Alum.

In what cases is Alum laxative?

Where there is atony or paresis of the muscular coat of the bowel.

In what is Alum a specific?

In painters' colic.

How does it act in this disease?

By overcoming the paralysis of the muscular coat of the intestine.

What are the *internal* uses of Alum?

Combined with Gentian, Alum is of service in *gastric catarrh* where glairy mucus is being vomited. In *intestinal hemorrhage*, *gastralgia*, *enteralgia*, and *intes-*

tinal catarrh it has been used with advantage; given internally in combination with baths, it checks *colliquative sweating*. Its use in membranous *croup* has been highly extolled by some writers. In *diabetes insipidus* it is said to have a good effect.

What is Alum Exsiccatum?

Alum deprived of its water of crystallization by heat.

For what is it used?

As a mild escharotic to ulcers when the granulations are exuberant.

What case of poisoning by Alum is on record?

An ounce and five drachms proved fatal in eight hours.

What are the incompatibles of Alum?

The alkalies and their carbonates, Lime, Magnesia, Carbonate of Magnesia, Tartrate of Potassium, and Acetate of Lead, are incompatible.

ADMINISTRATION.

Gastric Catarrh.

℞ Aluminis, ... ℥ij.
Ext. gentian., ... ℈ss.
M. ft. pil. No. XXX.
Sig.: Two pills three times a day.

Intestinal Hemorrhage.

℞ Aluminis, ... ℥ij.
Pulv. aromatic, ... ℥j.
Pulv. opii, ... gr. vj.
M. ft. pulv. No. VI.
Sig.: One powder in honey or syrup three times a day.

℞ Aluminis, ... ℥j.
Extracti opii, ... gr. x.
Catechu, ... ℥j.
M. ft. pil. No. XX.
Sig.: Two pills every two or three hours.

Colica Pictonum.

℞ Aluminis, ... ℥ij.
Acid sulphuric *dil.*, ... f℥j.
Syrup limonis, ... f℥j.
Aquæ, ... f℥iij.
M. Sig.: A tablespoonful every hour or two.

℞ Aluminis, ... ℥ij.
Vini, ... f℥iv.
Catechu, ... ℥j.
Tragacanth, ... ℥j.
Aquæ, ... f℥viij.
M. Sig.: A tablespoonful every hour.

Hæmorrhoids.

℞ Pulv. aluminis, ... ℥ij.
Pulv. camphor,
Pulv. opii, ... āā ℥j.
Unguenti, ... f℥j.
M. ft. unguentum.
Sig.: Apply as directed.

Spongy Gums.

℞ Aluminis, ... ℥j.
Vini, ... Oj.
Tinct. cinchonæ, ... f℥ss.
Tinct. myrrh, ... ℥ij.
Mel rosæ, ... ℥ij.
M. Sig.: Mouth-wash.

Chronic Gonorrhœa.

℞ Aluminis, ... ℥j.
Zinci sulphatis, ... ℥ss.
Sodii biboratis, ... gr. iv.
Aquæ rosæ, ... f℥viij.
M. Sig.: Injection.

Bed-Sores.

℞ Alum, ... ℥ss.
Whites of 4 eggs.
Tinct. camphor, ... f℥ij.
M. Sig.: Apply locally.

℞ Alum, ... ℥ss.
White of egg.
M. Sig.: Apply as directed.

PLUMBUM (LEAD).

Into what two main classes are the Salts of Lead divided?

The soluble and the insoluble.

Which are the soluble?

Plumbi Acetas, Plumbi Iodidum, Plumbi Nitras.

Which are insoluble?

Plumbi Carbonas, Plumbi Oxidum.

Which salt is most frequently the cause of *acute* lead-poisoning?

The Acetate.

What are the symptoms?

A sweet, metallic taste in the mouth, with a feeling of dryness about the throat and great thirst, followed by nausea and the vomiting of milky-white matter (Chloride of Lead). Later, violent abdominal pains and cramps ensue. The bowels may be constipated, or there may be diarrhœa with dark, black stools, due to the Sulphuret of Lead. Collapse generally comes on, and finally coma, with or without convulsions. A blue line on the gums at the junction of the mucous membrane with the teeth, caused by a deposit of the Sulphide of Lead in the capillaries, is often present very early, and is characteristic of lead-poisoning.

What is the fatal dose of Sugar of Lead?

Between one and two ounces.

What is the treatment of lead-poisoning?

Evacuate the stomach and give Sulphate of Sodium or Magnesium, followed by Opium and albuminous drinks.

How do these antidotal salts act?

They form an insoluble Sulphate of Lead.

What Salt of Lead is most frequently the cause of chronic lead-poisoning?

The Carbonate.

What are the symptoms of chronic lead-poisoning?

Colicky pains are generally the first symptom. The bowels become costive and the tongue furred. Thirst may be sometimes extreme. Neuralgic pains in the body and limbs are of frequent occurrence. Nervous symptoms may develop, with delirium or epileptiform convulsions. The extensor muscles of the forearm are frequently paralyzed, giving rise to the symptom known as "wrist-drop." Strabismus may also result from paralysis of the recti muscles of the eye. Here, as in the acute form, the blue line upon the gums is highly diagnostic. In fatal cases paralysis progresses, extends from one muscle to another, and the patient wastes away, finally dying from paralysis of the muscles of respiration.

What anomalous forms may lead-poisoning assume?

Amaurosis may result from atrophy of the optic nerve; or the symptoms may resemble poliomyelitis, hemiplegia, hemianæsthesia, or chorea. The kidneys may be attacked, and the resemblance between gout and plumbism be very marked.

To what are the epileptiform convulsions due?

In some cases they are secondary to nephritis, but in other cases due to a direct action of the Lead.

What effect has Lead on muscular tissues?

It destroys their structure entirely.

How is Lead eliminated?

By the kidneys.

What are the indications for treatment in chronic lead-poisoning?

(1) To prevent the ingestion of more poison; (2) to assist in the elimination of that in the system; and (3) to relieve the symptoms and meet indications as they arise.

In what way can the Lead be eliminated?

By powerful purgatives and drastics, baths of Sulphuret of Potassium, and the internal administration of Alum, which acts as a specific, and Iodide of Potassium, and the continued use of electricity.

To what is the diarrhœa in lead-poisoning due?

The action of Lead on the intestinal ganglia.

To what is the paralysis of the muscles due?

To a direct action of the Lead on the muscle-tissue itself.

To what are the convulsions due?

To the action of Lead on the cerebrum.

What is the character of the pulse in lead-poisoning?

Hard and tense.

To what is this due?

To an overfulness of the blood-vessels caused by the expulsion of the blood from the vessels of the mesentery and intestines.

What preparations of Lead are recognized by the Pharmacopœia?

Plumbi Oxidum.
Emplastrum Plumbi.
Plumbi Acetas.
Liquor Plumbi Subacetatis.
Liquor Plumbi Subacetatis Dilutus.
Ceratum Plumbi Subacetatis.
Plumbi Carbonas.
Unguentum Plumbi Carbonatis.
Plumbi Nitras.
Plumbi Iodidum.
Unguentum Plumbi Iodidi, etc.

What is Litharge?

Oxide of Lead.

How is it prepared?

By blowing air through melted Lead.

What are its physical properties?

It occurs as small, yellowish, orange-colored scales.

For what is it used?

For making Lead Plaster, Resin Plaster, and Soap Plaster.

What is the composition of Lead Plaster?

Litharge, Olive Oil, and water are boiled together.

How is Resin Plaster made?

By incorporating Resin with the foregoing.

What name is it generally known by?

Sticking or Adhesive Plaster.

How is Emplastrum Saponis made?

By adding Soap to Lead Plaster.

How is Plumbi Acetas made?

By the action of Acetic Acid on Litharge, or on sheets of Lead exposed to the air.

What is its appearance?

White acicular crystals, with a sweetish astringent taste.

What are its uses in medicine?

Principally in the treatment of *diarrhœa*, combined with opium, especially the diarrhœas of phthisis, cholera, and typhoid fever. Owing to its astringent properties it is employed in *hæmatemesis*, especially that arising from gastric ulcer, and in the oversecretion of *bronchorrhœa*, and *asthma*.

What precaution should be observed in administering preparations of Lead?

The gums should be examined for the evidences of absorption every day.

For what is Lead used externally?

In the form of a *paint*, Carbonate of Lead with Linseed Oil forms an excellent application to burns provided their superficial extent be not too great. The Liquor Plumbi Subacetatis with Laudanum is very extensively used for sprains and inflamed surfaces of any kind.

For what is Nitrate of Lead used?

Principally for disinfectant purposes, and for the destruction of dead tissue in onychia maligna.

How is it applied in onychia maligna?

In the form of a powder sprinkled over the surface of the nail.

What caution should be observed in using Collyria of Lead?

Lest they be applied to a sloughing cornea, in which case they cause opacity.

ADMINISTRATION.

Acute Dysentery.

℞ Pulv. opii, ... gr. ss.
Plumbi acetatis, ... gr. ij.
Pulv. ipecac., ... gr. j.
M. ft. pulv.
Sig.: One every two hours.

℞ Plumbi acetatis, ... gr. viij.
Acid. acetic., ... gtt. vj.
Tinct. opii deodorat., ... gtt. iv.
Aquæ destillat, ... ℥j.
M. Sig.: A teaspoonful every two, three or four hours.

Choleraic Diarrhœa.

℞ Plumbi acetat., ... gr. xxiv.
Pulv. opii, ... gr. xij.
Pulv. camphor, ... ℥ss.
Sacchari albi, ... q. s.
M. ft. pulv. No. XII.
Sig.: One every two hours.

Dysentery.

℞ Plumbi acetatis, ... gr. iv.
Morph. acetat., ... gr. ss.
Aquæ fervid., ... f℥j.
M. Sig.: An enema.

Hæmoptysis.

℞ Plumbi acetatis, ... gr. xl.
Pulv. digitalis, ... gr. xx.
Pulv. opii, ... gr. x.
M. ft. pil. No. XX.
Sig.: One every four hours.

Eczema.

℞ Plumbi acetatis, ... ℥ss.
Camphor. pulv., ... gr. xv.
Olei amygdal., ... ℥ij.
Ceræ flavæ, ... ℥j.
M. ft. ceratum.

℞ Plumbi acetatis, ... gr. v.
Acid. nitric. *dil.*, ... f℥ss.
Aquæ, ... f℥vj.

Gonorrhœa.

℞ Liq. plumbi subacetatis *dil.*, . . . f℥iv.
Zinci sulphatis, ... gr. viij.
M. Sig.: An injection.

BISMUTH.

What preparations of Bismuth are mostly used in medicine?

The Subcarbonate and the Subnitrate.

How are they distinguished chemically?

The Subcarbonate dissolves *with*, and the Subnitrate *without*, effervescence in Nitric Acid.

What are their physical appearances?

Heavy, white, tasteless, odorless powders.

To what are the irritant properties sometimes ascribed to Bismuth due?

To its contamination with Arsenic.

What is the physiological action of Bismuth Salts?

Applied to the tongue they blacken its surface, owing to the formation of a sulphide. They increase digestion, and, on the intestines, act as astringents, producing a slate-coloration in the stools. They are excreted both by the urine and the fæces.

For what are the Salts of Bismuth used internally?

For acute indigestion, from whatever cause arising; chronic gastritis, disordered digestion, gastric ulcer; also intestinal disorders, such as cholera infantum, summer diarrhœa. Especially is Bismuth of service in diarrhœa of typhoid fever and phthisis, and in chronic diarrhœa.

What are the *external* uses of Bismuth?

Freely applied to the mucous membrane of the mouth, Bismuth is of great service in the aphthæ of children, nursing sore mouths, and the small ulcers due to gastric disorder. It is also used for conjunctivitis and granular lids.

In what skin diseases is Bismuth serviceable?

Acne rosacea, eczema with serous exudation, intertrigo and erythema.

What other preparations of Bismuth are officinal?

The Citrate and the Citrate of Bismuth and Ammonium.

For what are they used?

For diarrhœa, acute and chronic; where there is no irritation.

ADMINISTRATION.

Cholera Morbus.

℞ Bismuthi subnitratis, ... gr. xx.
Acid. carbolic., ... gr. ss.
Glycerin., ... gtt. xx.
Aquæ, ... ad f℥ss.
M. Sig.: A dessertspoonful every hour or two.

℞ Bismuthi subnit., ... gr. v.
Tinct. opii camph., ... gtt. j.
Misturæ cretæ, ... ʒj.
M. Sig.: Every four hours, for a child of one year.

Enterocolitis.

℞ Bismuthi subnit., ... gr. v.
Pulv. ipecac., ... gr. ¼.
Cretæ præp., ... gr. iij.
M. Sig.: After each stool.

℞ Bismuthi subnit., ... ℥ss.
Pulv. acaciæ,
Sacc. alb., ... āā q. s.
Syr. gall. aromat., ... fʒj.
Spts. vini gallici, ... fʒij.
Aquæ, ... ad fʒiij.
M. Sig.: A teaspoonful every two hours.

℞ Hydrarg. chlorid. mitis, ... gr. ¼.
Bismuthi subnit., ... gr. xx.
M. ft. pulv. No. V.
Sig.: A powder every half hour.

℞ Bismuthi subnit., ... gr. xx.
Pulv. ipecac. et opii, ... gr. x.
M. ft. pulv. No. V.
Sig.: One powder every two hours.

℞ Bismuthi subnit., ... gr. xxx.
Pulv. ipecac., ... gr. j.
Cretæ præp., ... gr. xxiv.
M. ft. pulv. No. VI.
Sig.: One powder every two hours.

Lotion.

℞ Bismuthi subnit., ... gr. vj.
Hydrarg. chlor. cor., ... gr. ss.
Tinct. camphor., ... ♏iss.
M. Sig.: Apply as directed.

℞ Bismuthi subnit., ... ʒij.
Acid. carbolic., ... gr. ii–iv.
Mucil. acaciæ, ... fʒj.
Aquæ menth. pip., ... fʒiij.
M. Sig.: A tablespoonful for an adult three or four times a day.

℞ Bismuthi subnit., ... ℥ij.
Morphinæ sulph., ... gr. ss.
M. ft. pulv. No. VI.
Sig.: One powder three times a day with milk.

If morphine cannot be taken,—

℞ Bismuthi subnit., ... ℥ij.
Acidi hydrocyan. *dil.*, ... fℨss.
Mucilaginis acaciæ,
Aquæ menth. pip., ... āā fℨij.
M. Sig.: A tablespoonful three times a day.

Gonorrhœa.

℞ Bismuthi subnit., ... gr. xxx.
Glycerini, ... fℨj.
Aquæ rosæ, ... ad fℨiij.
M. Sig.: An injection.

CERIUM.

What preparation of Cerium is officinal?

The Oxalate.

Describe it.

Oxalate of Cerium is a white powder, closely resembling Bismuth, insoluble in Alcohol, Ether, and water; but soluble in Sulphuric Acid.

For what is it used?

In cases of vomiting and cough, reflex in origin, *e.g.*, the vomiting of pregnancy or other uterine disturbances. It has also been used, like Bismuth, in chronic diarrhœa.

What is the dose?

Gr. ij to v.

How is it generally administered?

In pill form.

ADMINISTRATION.

℞ Cerii oxalatis, ... gr. xv.
Extracti gentianæ, ... gr. v.
Misce et divide in pilulas No. X.
Sig.: One pill an hour after each meal.

SIR JAMES SIMPSON.

℞ Cerii oxalatis, ... gr. xxiv.
Extracti nucis vomicæ, ... gr. vj.
Ferri reducti, ... gr. xxiv.
Syrupi, ... q. s.
Misce et divide in pilulas No. XXIV.
Sig.: One pill at each meal.

ZINC.

What preparations of Zinc are officinal?

Zinci Oxidum.
Precipitated Carbonate of Zinc.
Sulphate of Zinc.
Acetate of Zinc.
Chloride of Zinc.
Liquor Zinci Chloridi.
Valerianate of Zinc.
Zinc Ointment.
Zinc Iodide.

How is the officinal Oxide of Zinc prepared?

By heating Carbonate of Zinc until the water and acid are driven off.

What are its physical appearances?

It is a yellowish-white powder, insoluble in water, but soluble in dilute acids.

What are the soluble preparations of Zinc?

The Chloride, Iodide, Sulphate, and Acetate.

For what is the Chloride of Zinc used?

As a local application and escharotic for warts, malignant growths, etc.

How is it applied?

By making a paste with flour or powdered Althæa-root and water, or in the form of "caustic arrows."

How are Caustic Arrows made?

By mixing Zinc Chloride with an equal amount of gutta-percha and running the paste thus formed into moulds of the required shape.

For what is the Sulphate of Zinc used?

In doses of six to thirty grains Sulphate of Zinc acts as a prompt mechanical emetic. In smaller doses it acts

as an astringent, and is given in chronic diarrhœa and dysentery, combined with Opium and Ipecacuanha. A weak solution of Sulphate of Zinc is used in conjunctivitis and gonorrhœa. It has been used in chorea, but with slight benefit. Dried Sulphate of Zinc dusted upon lupus, epithelioma, and unhealthy ulcers forms an excellent caustic.

What are the symptoms of poisoning by Sulphate of Zinc?

Those of an irritant poison. A sensation of warmth is felt in the stomach, increasing to burning pain. Vomiting and colicy pains, diarrhœa, and general prostration ensue, and the patient dies in collapse, preceded by cold sweats, great depression, and violent cramps.

What are the antidotes to zinc-poisoning?

Soap, Lime-water, Alkalies, Potassium and Sodium Carbonate, mucilaginous drinks, Eggs, and Milk.

Does Zinc poison chronically?

Not very often.

What are said to be the symptoms of chronic zinc-poisoning?

They either manifest themselves in the form of a bronchial catarrh or "zinc asthma," or else they present certain nervous phenomena closely simulating myelitis.

What are the uses of Oxide of Zinc?

In doses of gr. ij–iv Oxide of Zinc has been highly recommended for the *diarrhœas* of children, combined with Morphia and Bismuth. In *gastralgia* it is very efficient. It is much used combined with Belladonna for the *night-sweats* of phthisis. It has been used with varying success in *whooping-cough*.

What is the effect of Zinc on epilepsy?

It has very little influence unless it arises from some gastric disorder.

What is the effect of Zinc on the intestines?

It acts as an astringent, causing constipation and arresting peristaltic movements.

What are the *external* uses of Oxide of Zinc?

In the form of a dusting powder, lotion, or ointment it is a useful astringent application to excoriated surfaces, *e.g.*, in herpes, eczema, impetigo, erythema, or intertrigo.

How is Zinc Acetate prepared?

By the action of Acetic Acid on Oxide of Zinc.

What are its physical characteristics?

It is a white crystalline powder soluble in water, and with a great tendency to effloresce.

What are the therapeutic uses of the Acetate of Zinc?

Zinc Acetate is chiefly used for eye-washes and injections for gonorrhœa.

What is the dose of Valerianate of Zinc?

From gr. $\frac{1}{4}$ to gr. j.

For what is it used?

Mainly as an antispasmodic in hysteria, nervous cough, aphonia, and the neuralgia due to pelvic irritation.

How is Zinc Valerianate administered?

In pill form.

What is the composition of Zinc Ointment?

Oxide of Zinc, 20 parts; Benzoinated Lard, 80 parts.

ADMINISTRATION.

Summer Diarrhœa of Children.

℞ Bismuthi subnitratis, ... ℥i–ij.
Pepsinæ sacch., ... ℥ss.
Zinci oxidi, ... gr. vi–xij.
M. ft. pulv. No. XII.
Sig.: One powder every four hours.

Alcoholic Gastric Catarrh.

℞ Zinci oxidi, ... ℥j.
Ext. belladonnæ, ... gr. v.
M. ft. pil. No. XX.
Sig.: One pill ter die.

Eczema.

℞ Zinci oxidi, ... ℥j.
Piperin, ... gr. xx.
M. ft. pil. No. XX.
Sig.: One pill three or four times a day.

℞ Zinci oxidi, ... ℥ij.
Glycerin, ... f℥ij.
Liquoris plumbi acetatis, ... f℥iss.
Aquæ calcis, ... ad f℥vj.
M. ft. Sig.: Lotion.

Seborrhœa.

℞ Zinci oxidi, ... ℥j.
Plumbi carbonat., ... ℥j.
Cetacei, ... ℥j.
Olei olivæ, ... q. s.
M. ft. unguentum.

Chronic Diarrhœa.

℞ Zinci sulphatis,
Pulveris opii,
Pulveris ipecac., ... ää gr. xij.
M. ft. pulv. No. XII.
Sig.: One pill three or four times a day.

Gonorrhœa.

℞ Aluminis, ... gr. xx.
Zinci sulphatis, ... gr. x.
Glycerin, ... f℥j.
Aquæ rosæ, ... f℥iv.
M. Sig.: Lotion.

℞ Zinci sulphatis, ... gr. viij.
Aquæ rosæ, ... f℥viij.
M. Sig.: As an injection.

℞ Zinci sulphatis,
Plumbi acetatis, ... ää gr. viij.
Ammonii chloridi,
Aluminis, ... ää gr. iv.
Aquæ rosæ, ... f℥j.
M. Sig.: As an injection.

℞ Zinci chloridi, ... gr. j.
Aquæ, ... f℥j.
M. Sig.: Injection.

Conjunctivitis.

℞ Zinci sulphatis, ... gr. ii–viij.
Morphinæ sulphatis, ... gr. ii–iv.
Atropinæ sulphatis, ... gr. ss–j.
Aquæ rosæ, ... f℥j.
M. Sig.: For the eye.

℞ Zinci acetatis, ... gr. viij.
Aquæ rosæ, ... f℥iv.
M. Sig.: Injection.

℞ Zinci acetatis, ... gr. ij.
Aquæ rosæ, ... f℥j.
M. Sig.: Eye-wash.

Erythema and Herpes.

℞ Zinci acetatis, ... gr. ij.
Aquæ rosæ, ... f℥j.
Unguenti aquæ rosæ, ... f℥j.
M. ft. unguentum.

Neuralgia.

℞ Zinci valerianatis, ... gr. xx.
Extracti gentianæ, ... gr. xx.
Extracti nucis vomicæ, ... gr. v.
Fiat massa. Div. in pil. No. XX.
Sig.: One pill four times a day.

℞ Zinci valerian., ... gr. xij.
Confec. rosæ, ... q. s.
M. ft. pil. No. XII.
Sig.: One every three hours.

CUPRUM (COPPER).

In what forms is Copper officinal?

As the Sulphate and Acetate of Copper.

What other name has Sulphate of Copper?

Blue Vitriol.

Describe it.

Sulphate of Copper occurs in blue, transparent, efflorescent crystals.

In what is it soluble?

Water; but not in Alcohol.

What is the physiological action of Sulphate of Copper?

It is a simple irritant emetic in doses of gr. v to xv. In very small doses it acts as a nerve tonic and astringent to the gastro-intestinal tract. In large doses it is **a violent poison.**

What are its local effects?

In a dilute solution it is mildly stimulating to mucous membranes, and astringent. If applied in the form of a powder it is an irritant, and mildly caustic.

For what is Sulphate of Copper used in medicine internally?

Principally as a mechanical emetic in narcotic poisoning, and for its action on the gastro-intestinal tract, *e.g.*, it is most useful in acute and chronic dysentery, chronic diarrhœa, and in the vomiting of pregnancy.

What are the external uses of Sulphate of Copper?

In the form of a solution it is applied as an astringent to inflamed surfaces and indolent ulcers. In the form of "blue stone," it may be used to arrest the hemorrhage of small wounds, such as leech-bites. By applying a crystal to flabby granulations, as in granular lids, a healthy reaction is established. A weak solution of Sulphate of Copper is a common injection for gonorrhœa. An ointment of the Sulphate or Acetate of Copper is highly recommended in mentagra and tinea sycosis.

What are the symptoms of *acute* copper-poisoning?

They are partly those of any ordinary gastro-enteritis due to the local action of the poison, and partly nervous from its systemic effect.

What are the gastro-intestinal symptoms?

A metallic, coppery taste in the mouth, accompanied by profuse secretion of saliva and bronchial mucus, followed by intense pain in the stomach and the vomiting of bluish matter. The stools are mucous and frequently bloody, presenting a characteristic greenish appearance.

What are the nervous symptoms?

Headache, trembling in the limbs, convulsions, followed by paralysis, delirium, anæsthesia, and death. The urine is generally lessened and *black in color*,—due to the presence of hæmoglobin.

What chain of symptoms is noticeable if the patient is likely to recover?

After twenty-four hours jaundice sets in, followed by gastro-intestinal symptoms and fever.

What is the chemical antidote to copper-poisoning?

The Yellow Prussiate of Potassium.

How does it act?

By precipitating an insoluble compound of Copper, —the Ferrocyanide of Copper.

What domestic remedies are available?

Soap, Milk, and Eggs, followed by the evacuation of the stomach by means of the stomach-pump or an emetic.

What are the symptoms of chronic copper-poisoning?

When due to the inhalation of copper fumes the symptoms are those of bronchial catarrh, accompanied by gastro-intestinal pain and disorder, a coppery taste in the mouth, loss of appetite, nausea, vomiting, colic and diarrhœa, progressive loss of flesh, followed by general impairment of the nervous system, paralysis, defective co-ordination and failure of mental powers.

What is the dose of Copper Sulphate?

Gr. $\frac{1}{6}$–$\frac{1}{2}$.

What dose should be given at first?

Not greater than gr. $\frac{1}{12}$.

What is the dose of the Acetate of Copper?

Gr. $\frac{1}{10}$–$\frac{1}{4}$.

For what is it used?

It may be used indifferently for the Sulphate. It has no properties of its own.

What are the incompatibles of Copper Salts?

The Alkalies and their Carbonates, Lime-water, Mineral Salts, and most astringent vegetables.

What is Verdigris?

An impure Acetate of Copper.

ADMINISTRATION.

Vomiting of Pregnancy.

℞ Cupri sulphatis, ... gr. ij.
Aquæ destillatæ, ... f℥ss.
M. Sig.: Six drops for a dose.

Emetic in Narcotic Poisoning.

℞ Cupri sulph., ... gr. vj.
Aquæ destillatæ, ... f℥ij.
M. Sig.: A teaspoonful every fifteen minutes till vomiting ensues.

Gastro-Intestinal Catarrh.

℞ Cupri sulphatis, ... gr. j.
Extracti nucis vomicæ, ... gr. iv.
M. ft. pil. No. XVI.
Sig.: One pill three times a day before meals.

℞ Cupri sulphatis, ... gr. j.
Extracti physostigmæ,
Extracti belladonnæ,
Extracti nucis vomicæ, . . . āā gr. iv.
M. ft. pil. No. XVI.
Sig.: One pill three times a day before meals.

Acute Dysentery.

℞ Cupri sulphatis, ... gr. ss.
Magnesii sulph., ... ʒj.
Acid. sulphurici *dil.*, ... fʒj.
Aquæ, ... fʒiv
M. Sig.: Tablespoonful every four hours.

Chronic Diarrhœa.

℞ Cupri sulphatis, ... gr. j.
Morphinæ sulph., ... gr. j.
Quininæ sulphatis, ... gr. xxiv.
M. ft. pil. No. XII.
Sig.: One pill three times a day.

Gonorrhœa.

℞ Cupri sulph., ... gr iv.
Morphinæ sulph., ... gr. viij.
Liquoris plumbi subacetatis, . . . fʒj.
Aquæ rosæ, ... fʒiv.
M. Sig.: As an injection.

Mentagra.

℞ Cupri sulph., ... ʒj.
Zinci sulph., ... ʒss.
Aquæ lauro-cerasi, ... fʒiss.
Aquæ destillatæ, ... ad fʒxvj.
M. Sig.: Lotion.

SILVER.

What preparations of Silver are recognized by the U. S. Pharmacopœia?

Argenti Nitras, Argenti Oxidum, the Iodide, and the Cyanide.

How many forms of Argenti Nitras are there?

Three.—Argenti Nitras, Argenti Nitras Dilutus, and Argenti Nitras Fusus.

What is the composition of Argenti Nitras Dilutus?

Nitrate of Silver, 50 parts; Nitrate of Potassa, 50 parts.

How does it occur?

In pencils or cones.

In what form does Argenti Nitras Fusus come?

In cylindrical pieces.

Which salt alone is used internally?

Argenti Nitras.

What is its appearance?

White, shining, crystal, rhombic plates.

In what is it soluble?

Water, Nitrous Acid, and Nitrous Ether.

What is the chemical test for Nitrate of Silver?

Hydrochloric Acid throws down a heavy, white, curdy precipitate, soluble in excess of Aqua Ammoniæ.

What is the effect of a local application of Nitrate of Silver?

In a *dilute solution* it acts as an astringent, coagulating the albumin if in a stronger form; applied in its *pure state* it acts as a caustic, destroying the tissue and forming a whitish eschar, which subsequently turns dark.

To what is the dark color due?

To the formation of the Oxide of Silver.

What are the physiological effects of Nitrate of Silver when taken internally?

In large doses Nitrate of Silver acts as a corrosive poison, producing vomiting and purging, and powerfully affecting the nervous system, producing paralysis and convulsions, and causing death finally from cessation of respiration.

What are the effects of small doses?

Small doses increase secretion of the intestinal tract, promote nutrition and digestion, and, generally speaking, are tonics to the nervous system.

What effects follow the prolonged use of Nitrate of Silver?

Loss of appetite, wasting of the body, diarrhœa, diminished secretion of urine, with albuminuria and slight lowering of bodily temperature. The heart's action becomes rapid and irregular. The blood becomes darker and more fluid, and ecchymoses are frequent.

What effect has Silver on epithelial structures?

It causes swelling and cloudiness of the cells, followed by fatty degeneration and destruction of the nucleus, and then of the cell itself.

What are the symptoms of acute poisoning by Nitrate of Silver?

Those of gastro-enteritis, combined with symptoms of nervous origin. The lips and skin are discolored, and the vomited matters black. After the administration of salt the vomited matters and stools are white and curdy. The mucous membrane of the alimentary tract is discolored and corroded. The nervous symptoms consist of insensibility and violent convulsions.

To what are convulsions due?

They are centric.

What is the minimum fatal dose of Silver?

It is not known exactly. Thirty grains have proved fatal.

What is the antidote to Nitrate of Silver?

Common salt given in large doses to form the insoluble Chloride of Silver.

What are the therapeutic uses of Nitrate of Silver as a local application?

Nitrate of Silver is used locally (1) as a *simple caustic*

where only a superficial action is required, in indolent ulcers, to flabby granulations, small ulcers on the mucous membrane of the mouth, etc.; (2) as a *weak solution* it may be applied to inflammation of the pharynx, larynx, and trachea in gonorrhœa, and in conjunctivitis; (3) *strong solutions* are specially useful in aborting *commencing inflammations*, *e.g.*, boils, felons, thecal abscess, traumatic erysipelas, malignant carbuncle, also in certain *skin diseases*, *e.g.*, erythema, eczema, psoriasis, ringworm, etc., and to allay the troublesome *itching* of pruritus vulvæ; (4) strong solutions (gr. xx–ʒj.) are much used in granular lids, granular cervicitis, ulceration of the cervix, and endometritis, restoring a healthy tone to these tissues.

What are the internal uses of Nitrate of Silver?

For its influence on the gastro-intestinal tract, it is employed in dyspepsia, gastralgia, gastric catarrh, pyrosis, acid eructations of food, gastric ulcer, and in diarrhœas of typhoid, phthisis, cholera infantum, and dysentery (acute and chronic). For its systemic effect on the nervous system it has been largely used in locomotor ataxia and epilepsy.

What danger attends its continued use in these diseases?

The production of a dark coloration of the skin and mucous membrane.

How may this be avoided?

By careful examination of the mucous membrane of the gums where this first makes its appearance, and the immediate cessation of the remedy.

What is the dose of Nitrate of Silver?

Gr. $\frac{1}{4}$ to 1.

How is it administered?

Generally in pill form.

What is the best solvent of Nitrate of Silver for outward application?

Nitrous Ether.

What is the dose of the Oxide of Silver?

Gr. ss–ij.

How is it administered?

In pill form.

What are its therapeutic uses?

Similar to those of the Nitrate.

Describe the Iodide of Silver?

It is a yellowish, amorphous, tasteless powder, insoluble in alcohol or water.

For what is it used?

It has been recommended in the treatment of whooping-cough and progressive locomotor ataxia.

What is the dose?

Gr. $\frac{1}{10}$–$\frac{1}{4}$.

What are the incompatibles of Silver?

The soluble Chlorides; Sulphuric, Sulphurous, Muriatic and Tartaric Acids; Alkalies and their Carbonates.

For what is the Cyanide of Silver used?

For the preparation of Hydrocyanic Acid.

What is the dose of the Cyanide of Silver?

Gr. $\frac{1}{40}$–$\frac{1}{10}$ in pill form.

ADMINISTRATION.

Chronic Gastric Catarrh.

℞ Argenti oxidi, ... gr. v.
Extracti hyoscyam., ... gr. v.
M. ft. pil. No. X.
S.: One t. d. before meals.

Cholera Infantum.

℞ Argenti nitratis, ... gr. xv.
Aquæ destillatæ,
Extracti belladonnæ, ... gr. x.
Olei caryophylli, ... gtt. x.
Radicis gentianæ pulv.,
Extracti gentianæ, . . . āā q. s.
M. ft. pil. No. LX.
S.: One pill three times a day.

Diarrhœa.

℞ Argenti nitratis, ... gr. j.
Acidi nitrici *diluti*, ... ℥viij.
Tincturæ opii deodoratæ, . . . ℥viij.
Mucilaginis acaciæ, ... f℥ss.
Syrupi simplicis, ... f℥ss.
Aquæ cinnamom., ... f℥j.
M. S.: A teaspoonful every three, four, or six hours.

℞ Argenti nitratis, ... gr. iij.
Pulv. opii,
Pulv. ipecac., ... āā gr. vj.
M. ft. pil. No. XII.
S.: One every four hours.

To Prevent Bed-sores.

℞ Argenti nitratis, ... ℥ij.
Aquæ destill., ... ℥vj.
Paint over threatened bed-sores.

VEGETABLE TONICS.

What are Tonics?

Tonics are drugs which modify the nutrition of the tissues in such a way as to give tone to the system.

How do they differ from astringents?

In the permanency of their action, which is not that of contractility.

How do they differ from stimulants?

In the slowness and progressiveness of their action.

What are the principal indications for the use of Tonics?

Debility, which is dependent on impaired nutrition, and not on some suddenly depressing agent.

What two main divisions of Tonics are there?

Vegetable and Mineral.

What subdivisions of the Vegetable Tonics have been made?

Simple Bitters, Peculiar Bitters, Aromatic Bitters, and True Aromatics.

SIMPLE BITTERS.

What are the characteristics of the Simple Bitters?

They give tone to the digestion alone, and thereby improve the general nutrition without especially affecting other portions of the system.

Which are the Simple Bitters?

Calumba, Chirata, Cornus, Eupatorium, Gentian, and Quassia.

What are the physiological effects of the Simple Bitters?

Taken into the mouth, they increase the flow of saliva and promote the flow of the gastric juice. Thus they promote digestion and increase the appetite for food.

What is the effect of their long-continued use?

They produce gastric catarrh and finally impair digestion.

Which is the mildest of the Simple Bitters?

Calumba.

Which the most active?

Quassia.

What are the incompatibles of these bitters?

Salts of Iron, Lead, and Silver.

Which bitters may be given with Iron?

Calumba, Quassia, Chirata, and Gentian.

CALUMBA.

What is Calumba?

The root of the Cocculus Palmatus, a climbing vine of Mozambique.

How is it found in the market?

In transverse, disk-like slices, one or two inches in diameter, yellowish in color, with a bitter, astringent taste.

What are its active principles?

Starch, Berberina, and Calumbin.

Does Calumba contain Tannic Acid?

It does not.

What are the officinal preparations?

The Tincture and Fluid Extract.

What are the doses of each?

Half a teaspoonful to two teaspoonfuls.

What are the therapeutic uses of Calumba?

It is used as a mild tonic to give tone to the *digestion* in convalescence from protracted diseases; a few drops of the tincture are very efficacious in relieving the *vomiting* of pregnancy and of sea-sickness. Its infusion is extremely useful as a *vehicle* for the administration of acids and alkalies. In the *diarrhœa* of relaxation not dependent on inflammation, combined with Opium, it is very efficacious.

What is the strength of the infusion?

One ounce to a pint of water (unofficinal).

ADMINISTRATION.

Diarrhœa.

℞ Tinct. calumbæ, ... ʒxv.
Tinct. opii deodorat., ... ʒj.
M. Sig.: A teaspoonful in water before meals.

Phosphate Deposits in the Urine.

℞ Acidi phosphorici *diluti*, . . . f℥ss.
Tincturæ cardamomi comp., . . . f℥ss.
Infusi calumbæ, ... f℥vij.
M. Sig.: Tablespoonful in sugar and water every four hours.

CHIRATA.

What preparations of Chirata are officinal?

The Fluid Extract (dose ♏v–x) and the Tincture (f℥j).

What other preparation is there?

The Solid Extract (dose gr. i–ij).

What is the physiological action of Chirata?

It is a tonic like Gentian, and is further supposed to have a specific cholagogue action on the liver.

CORNUS.

What is Dogwood?

The bark of the Cornus Florida.

What preparation is officinal?

Extractum Cornus Fluidum (♏x–f℥j).

What are its uses?

It is a simple bitter and stomachic. In the South it is much used as an antiperiodic, ranking next to Quinine.

EUPATORIUM (BONESET.)

What is Boneset?

The leaves of the Eupatorium Perfoliatum.

What preparation is officinal?

Extractum Eupatorii Fluidum (dose ♏x–f℥j).

What are its therapeutic properties?

In small doses it is a tonic. Its warm infusion when taken freely is a very efficient diaphoretic in household practice for muscular rheumatism, cold in the head, etc.

What objections are there to its use?

Its disagreeable taste and tendency to produce emesis.

GENTIAN.

What is Gentian?

The root of the Gentiana Lutea.

Where is it found?

In the Alps.

In what form is it found in the market?

In cylindrical pieces; brown externally, yellowish-brown within, with a faint odor and extremely bitter taste.

What preparations are officinal?

Extractum Gentianæ; dose, ...	gr. i–v.
Extractum Gentianæ Fluidum; dose, . .	f℥ss–j.
Tinctura Gentianæ Composita; dose, . .	f℥ss–ij.

What is the composition of the Compound Tincture of Gentian?

Gentian, 8; Bitter Orange-peel, 4; Cardamom., 2; Diluted Alcohol to 100 parts.

How is it employed in medicine?

As a bitter tonic and vehicle for the administration of acids or alkalies. Where a purgative and tonic are demanded it may be combined with infusion of Senna.

ADMINISTRATION.

℞ Pulv. aloes, ...	℥j.
Extracti gentianæ, ...	℥ss.
Olei carui, ...	gtt. x.
Syrupi, ...	q. s.

M. ft. pil. No. XXX.
Sig.: Two or three for a dose.

℞ Ferri reducti, ...	gr. xx.
Extracti gentianæ, ...	gr. xl.

Fiat massa. Div. in pil. No. XX.
One three times a day.

QUASSIA.

What is Quassia?

The wood of the Simaruba Excelsa, or Picræna Excelsa, a large tree growing in Jamaica.

What preparations are officinal?

Tinctura Quassiæ; dose, . . . gtt. xx–f℥j.
Extractum Quassiæ; dose, . . . gr. i–iij.
Extractum Quassiæ Fluidum; dose, . ♏v–f℥ss.

What is the physiological action of Quassia?

In large doses Quassia is extremely destructive to lower forms of life, being a poison both to nervous and muscular tissues. Applied locally a strong infusion (℥ij to Oj) is a good injection for seat-worms in children.

What are its therapeutic uses?

As a strong bitter tonic and as an injection for seat-worms.

ADMINISTRATION.

Acidity of the Urine.

℞ Tincturæ calumbæ, ... f℥j.
Infusi quassiæ, ... f℥iv
Sodii bicarbonatis, ... ℥j.
M. Sig.: A tablespoonful four times a day.

Tonic Pill.

℞ Ferri sulphatis, ... ℥j.
Extracti quassiæ, ... ℥j.
M. ft. pil. No. XL.
S.: One three times a day.

PECULIAR BITTERS.

What do you understand by Peculiar Bitters?

They are drugs which, in addition to the tonic properties possessed by the simple bitters, have some other special characteristic by which each member of the class is distinguished.

Which are the Peculiar Bitters?

Wild-cherry Bark, Cinchona and its alkaloids.

PRUNUS VIRGINIANA (WILD-CHERRY BARK).

What is Prunus Virginiana?

The bark of the Prunus Serotina.

In what form does it occur?

In curved pieces of a reddish-brown color, having an astringent, peach-like taste.

What are its active principles?

Amygdalin, Emulsin, Tannic Acid, and bitter extractive.

What is Amygdalin?

A nitrogenous crystallizable glucoside.

What is Emulsin?

An albuminous principle.

What effect has the union of Amygdalin with Emulsin?

Hydrocyanic Acid is produced.

To what are the virtues of Wild-cherry Bark due?

To the combined effect of Tannic and Prussic Acids.

What preparations are officinal?

Extractum Pruni Virginianæ Fluidum, .	f℥ss-j.
Infusum Pruni Virginianæ (4 per cent.), .	f℥ss-j.
Syrupus Pruni Virginianæ (12 per cent.), .	f℥i-ij.

What are the therapeutic uses of Wild Cherry?

Principally in phthisical and broncho-catarrhal cases, as an ingredient of cough-syrups, and as an adjuvant to other tonics in debilited states of the system.

ADMINISTRATION.

Cough.

℞ Mist. glyc. comp., ... f℥ij.
Syrup. pruni virg.,
Syrup. tolutan., ... āā f℥j.
M. Sig.: Dessertspoonful for a dose.

℞ Liq. morph., ... f℥j.
Syrup. scill. comp.,
Syrup. tolu., ... āā f℥j.
Syrup. ipecac.,
Spts. lavand. comp., . . . āā f℥ss.
Spts. limoni, ... f℥j.
Syrup. pruni virginiani, . . . ad f℥vj.
M. Sig.: A teaspoonful for a dose.

CINCHONA.

What are the peculiar properties of Cinchona?

In addition to its tonic property it is, further, an antiperiodic, a febrifuge, and an antiseptic.

What does the United States Pharmacopœia recognize as Cinchona?

The bark of any species which yields at least 3 per cent. of its alkaloids.

What varieties of bark come under this head?

Cinchona Flava, or Yellow Cinchona (the bark of the Cinchona Calisaya), and *Cinchona Rubra*, or Red Cinchona (the bark of the Cinchona Succirubra and Cinchona Pallida).

How are they distinguished physically?

They both occur in quills and short pieces. The epidermis of the *Yellow* variety is generally absent or only slightly adherent. The epidermis of the *Red* variety is firmly adherent.

What are the active principles of Cinchona?

Quinine, Cinchonine, and Cinchonidine, besides Tannic, Kinic, and Kinovic Acids.

What preparations of Cinchona are officinal?

Decoctum Cinchonæ Flavæ (℥i–Oj); dose, ℥ss.
Infusum Cinchonæ (Ar. Sulph. Acidi. $\frac{1}{100}$), f℥i–f℥j.
Extractum Cinchonæ, ... gr. i–x.
Extractum Cinchonæ Fluidum, . . . ♏x–f℥j.
Tinctura Cinchonæ, ... f℥ss–f℥ij.
Tinctura Cinchonæ Composita, . . . f℥i–f℥ss.

What is the composition of Tinctura Cinchonæ Composita?

Red Cinchona, 10 parts; Bitter Orange-peel, 8 parts; Serpentaria, 2 parts; Alcohol, Glycerin, and Water to make 100 parts.

What name is it generally known by?

Huxham's Tincture.

What is the physiological action of Cinchona?

Cinchona and its preparations are bitter tonics, increasing the flow of gastric juice and improving the digestion. They also are astringent from the presence of Tannic Acid.

For what are the various preparations of Cinchona itself used?

Chiefly as stomachic tonics, combined with the mineral acids in gastric catarrh, atonic dyspepsia, etc.

QUININE.

What preparations of Quinine are officinal?

The Sulphate, Bisulphate, and Valerianate.

Which of these is most commonly used?

Quininæ Sulphas.

Describe it?

Sulphate of Quinine occurs in very light, whitish, transparent, silky crystals, with exceedingly bitter taste.

In what is it best dissolved?

In acids or acidulated water. It is almost insoluble in water, requiring 740 parts of cold and 30 parts of boiling for its solution.

How is Bisulphate of Quinine prepared?

By dissolving the neutral Sulphate of Quinine in water acidulated with Sulphuric Acid, after which the Bisulphate is recovered by evaporation.

What do you understand by cinchonism?

Cinchonism is a term applied to a train of symptoms developed by the administration of quinine in sufficient doses to produce the physiological effect of the drug.

What effects follow the administration of small therapeutic doses?

Ringing in the ears, fullness and constriction of the head.

What are some of the results of administering a *large* dose of quinine?

Large doses affect the sight and hearing, occasionally producing temporary amaurosis and deafness. Rarely the sense of hearing has been lost for life. The face becomes flushed and the gait giddy and staggering; nose-bleed may occur to relieve this cerebral congestion.

What are the effects of a toxic dose?

The above symptoms are intensified; complete deafness and blindness ensue, with delirium, stupor, weak, fluttering pulse, irregular and shallow respiration, convulsions, paralysis and collapse.

How does Quinine affect the brain?

It is an irritant to the membranes of the brain, and in large doses abolishes its functions.

How does it affect reflex activity?

Very minute doses cause an increase in reflex activity by stimulating the peripheral sensory nerves. *Small* doses lessen and *large* doses abolish reflex activity by stimulating Setchenow's centre.

What effect has Quinine on the circulation?

Large doses lower the force and frequency of the pulse.

How does it do this?

By a direct action on the heart.

What is the effect of an ordinary therapeutic dose of Quinine on the circulation?

It has no perceptible effect.

What effect has Quinine on the blood?

It lessens its ozonizing power.

What effect has Quinine on the uterus?

During labor it is a powerful stimulant to uterine contractions.

How is Quinine eliminated?

Partly by the kidneys and partly in the fæces.

In what other secretions is it found?

Milk, tears, sweat and dropsical effusions.

In what forms is it eliminated?

Partly as Quinina and partly as dihydroxyl Quinina.

What is its effect on Uric Acid?

It causes a great diminution in the amount excreted.

What effect has Quinine on normal temperature?

None.

What effect has it when taken after exercise?

It prevents the rise in temperature which would naturally take place.

What are the therapeutic uses of Quinine?

Quinine is used as a tonic to abort certain diseases; and as an antiperiodic, antiseptic, and antipyretic.

In what doses is it administered as a tonic?

Gr. vi–viij daily.

What diseases is it used to abort?

Pneumonia, pleurisy, endocarditis, and other inflammatory processes.

How should it be administered under these circumstances?

In full doses of from 20 to 40 grains.

In what ways are its antiseptic properties available?

Applied *locally*, it will arrest an incipient nasal catarrh. Administered *internally*, it will arrest the suppurative process of tonsillitis, and do good service in pyæmia, septicæmia, erysipelas and puerperal fever.

When is the antipyretic action of Quinine most visible?

When fever has reached its acme and is on the point of descending, Quinine greatly accelerates its fall.

In what ways may Quinine be employed as an antiperiodic?

As a prophylactic against malarial infection, also in the treatment of remittent and intermittent fevers and of the various manifestations of chronic malaria.

What are the characteristics of remittent fever?

It is a continuous fever, marked at certain intervals by exacerbations.

How does this differ from intermittent fever?

In intermittent the patient is free from fever in the intervals between paroxysms.

How is Quinine administered in intermittent fever?

It is given in doses of 5 grains every two hours in such a way as to develop full cinchonism about four hours before the expected attack, or, as some prefer to give it, in two large doses with the same object.

How is Quinine administered in remittent fever?

It may be given in a single dose of 20 to 30 grains during the height of the fever, or its administration may be delayed until, by a preliminary course of purgatives, warm baths, and diaphoretics, a remission is obtained.

How should it be administered in pernicious fever?

Promptly in colossal doses of 40 grains if necessary, administered by the stomach, rectum, and hypodermically in turn or simultaneously.

What is the best remedy for the treatment of chronic malaria?

Arsenic.

How is Quinine best administered?

In *pill* form rubbed up with gum, with a drop of dilute sulphuric acid to each grain; in *powder* incorporated with chocolate to disguise the taste; in *solution* with extract of liquorice, or in *compressed tablet* form.

What is the objection to sugar-coated pills?

Their coverings become hard and do not dissolve.

What idiosyncrasies exist toward Quinine?

In some it causes irritation of the bladder, œdema, and rash. In others its effects on the cerebrum are very marked.

How may these latter be obviated?

By adding Hydrobromic Acid dilute to the Quinine, gtt. ij to gr. j.

In what form should Quinine be administered hypodermically?

As the Bisulphate in an acidulated solution, or as the Hydrobromate of Quinine.

What danger attends its hypodermic use?

It is precipitated by the alkaline juices of the cellular tissues, and causes intractable ulceration.

What are the other officinal alkaloids of Cinchona?

Cinchonine, Sulphate of Cinchonine, Sulphate of Quinidine.

What is the physiological action of Cinchonine?

Similar to but not as marked as that of Quinine, being about one-third weaker.

What is the dose of Quinidinæ Sulphas?

About one-third larger than Quinine.

What is Chinoidin?

It is a black substance remaining after the crystallization of the alkaloids of Quinine.

What is its use in medicine?

As a cheap Tonic and Antiperiodic.

What is the dose?

About double that of Quinine.

AROMATIC BITTERS.

What drugs are spoken of as Aromatic Bitters?

Chamomile, Virginia Snake-root, Cascarilla, and Canella.

On what do their virtues depend?

On the presence of a bitter principle and a volatile oil.

CHAMOMILE.

What is Chamomile?

The dried flowers of the Anthemis Nobilis.

What is Matricaria?

The flowers of Matricaria Chamomella, or *German* Chamomile.

How is Chamomile used?

Generally in the form of an infusion.

What is the dose of the Oil of Chamomile?

℥i–x., given on sugar.

For what is Chamomile used in medicine?

The infusion is used as a mild tonic, where the stomach is irritable, in doses of half a wineglassful. In the summer diarrhœas of infants, in doses of one or two

teaspoonfuls, it affords great relief, subduing peevishness and restlessness in little children.

SERPENTARIA.

What is Virginia Snake-root?

The root of the Aristolochia Serpentaria and Aristolochia Reticulata.

What preparations are officinal?

Tinctura Serpentariæ (℥iv–Oij); dose,	f℥ss–ij.
Extractum Serpentariæ Fluidum,	gtt. xx.

For what is it used?

As a tonic and stimulant expectorant.

What precaution should be observed in its use?

In large doses it may cause vomiting and purging.

ADMINISTRATION.

℞ Pulv. serpentariæ, ... gr. xij.
Pulv. aloes barbadensis, ... ℥j.
Pulv. canellæ, ... gr. xviij.
M. Div. in pulv. No. XII.
One every night at bed-time as a purgative and emmenagogue.

CASCARILLA.

What is Cascarilla?

The bark of the Croton Eleuteria.

How does it occur?

In grayish-brown quills of a warm, spicy taste, and emitting a delightful odor when burning.

What are its active principles?

Tannic Acid, volatile oil, resinoid extract, and a neutral principle, Cascarillin.

What are its uses?

As a tonic to promote appetite, and in chronic diarrhœa.

What are its preparations?

None are officinal. The dose of the tincture is f℥i–ij; powder, gr. x; extract, gr. x.

PREPARATIONS.

Compound Cascarilla Powder.

℞ Pulv. cascarillæ, ... gr. x.
Opii,
Ipecac., ... āā gr. j.
M. ft. pulv. One every five hours in diarrhœa.

Dysentery.

℞ Extracti cascarillæ, ... ℥j.
Sacchari albi, ... ℥vj.
Olei anthemidis, ... gtt. xx.
Tragacanth, ... ℥ss.
Vini opii, ... gtt. xxv.
Aquæ cinnamomi, ... f℥ij.
Aquæ menth. pip., ... f℥iv.
M. Sig.: Teaspoonful every hour.

CANELLA.

What is Canella?

The bark of the Canella Alba.

On what do its virtues depend?

A volatile oil and a bitter principle.

What is its appearance?

It has a pale, orange-yellow color, aromatic odor, and warm, pungent taste.

What are its therapeutic uses?

Canella is principally used as an adjuvant to other remedies. Combined with Aloes it forms "Hiera Picra," a mixture which, popularly known as "Hickery Pickery," is much used in amenorrhœa. It is a stimulant in the metrorrhagia and menorrhagia of feeble women.

What is the dose of powdered Canella?

Gr. x–xx.

ADMINISTRATION.

℞ Aloes, ... ℔j.
Canellæ, ... ℥iij.
M. ft. pulv. Dose gr. x–xx.

℞ Pulv. aloes, ... gr. xc.
Pulv. canellæ, ... gr. xviij.
Pulv. serpentariæ, ... gr. xij.
M. ft. pulv. Div. in chart. No. VI.
One every three hours in syrup.

Tincture of Hiera Picra.

℞ Pulv. aloes et canellæ, ... ℥iss.
Spiritus vini gallici, ... Oj.
Macerate for ten days.
Dose, a teaspoonful.

TRUE AROMATICS.

Which are the principal Aromatics?

Cinnamon, Cloves, Nutmeg, Allspice, Cardamom, Ginger, Pepper, Winter-Green, Fennel, Caraway, Coriander, Anise, Lavender, Rosemary, Sage, Peppermint, and Cajeput.

On what do the virtues of the Aromatics depend?

On the presence of a volatile oil.

What is the physiological action of these oils?

Locally applied, they are irritant; some, however, are anæsthetic. Taken internally, they produce a sense of warmth and act on the alimentary canal, causing contraction and expulsion of flatus. In large doses they lower the blood-pressure, acting directly on the heart itself. In greater quantities they are violent irritant poisons.

For what are they employed in medicine?

To give an agreeable flavor to other medicines, to act as carminatives to counteract the griping of certain purgatives, and to act as condiments to other drugs.

CINNAMON.

What preparations of Cinnamon are officinal?

Oleum Cinnamomi,	gtt. i–iij.
Aqua Cinnamomi,	f℥ss–Oj.
Spiritus Cinnamomi (1–10); dose,	f℥ss.
Tinctura Cinnamomi (of bark 1–10); dose,	f℥i–ij.
Extractum Aromaticum Fluidum,	gtt. x–xxx.
Pulvis Aromaticus; dose,	gr. x–xxx.

What is the composition of Aromatic Powder?

Cinnamon, 35; Ginger, 35; Cardamom, 15; Nutmeg, 15 parts.

How is Fluid Aromatic Extract made?

With 100 grammes of Aromatic Powder and sufficient Alcohol to make 100 c.c.

For what are the various preparations of Cinnamon used?

Oil of Cinnamon is used as a stimulant to the intestines to expel flatus, and to the nervous and vascular system generally. Powdered Cinnamon, in combination with Opium or some vegetable astringent, is used to check diarrhœa. Tincture of Cinnamon, in combination with Sulphuric Acid, has been much used in menorrhagia and other forms of uterine hemorrhage.

CARYOPHYLLUS.

What are Cloves?

The unopened flowers of the Caryophyllus Aromaticus.

What preparations are officinal?

Oleum Caryophylli,	gtt. i–xij.
Infusum Caryophylli (℥ij–Oj); dose,	f℥i–℥ij.

What are the special uses of Clove Oil?

It is used as an anæsthetic applied over a painful

nerve or to a carious tooth. Internally administered, it is an excellent carminative, correcting flatulence and relieving gastric pain.

MYRISTICA.

What are Nutmegs?

The kernels of the Myristica Moschata.

What preparations are used?

Pulv. Myristicæ, ...	gr. v–xx.
Oleum Myristicæ, ...	gtt. i–v.
Spiritus Myristicæ (3 per cent.), .	ʒi–ij.

What are the peculiar properties of Nutmeg?

Its oil in large doses is profoundly narcotic.

What are its therapeutic uses?

Principally for flavoring purposes and as a carminative and astringent in diarrhœas and dysentery.

MACIS.

What is Mace?

The Arillus, or fleshy covering of the Nutmeg.

What are its properties?

A stimulant, carminative, and aromatic.

In what doses is it given?

Gr. x–xx.

PIMENTA.

What is Allspice?

The unripe berries of the Eugenia Pimenta.

What preparations are used?

Water of Pimenta; dose, . .	fʒi–ij.
Tincture of Allspice (1–5), . .	gtt. x–xij.
Essence of Allspice, . . .	gtt. x–xxx.

For what is Allspice used?

As a warm aromatic stimulant, and as a condiment for other drugs.

CARDAMOMUM.

What are Cardamoms?

The fruit of the Elettaria Cardamomum.

What preparations are used?

Tinctura Cardamomi (1-6.6); dose, . fʒj.
Tinctura Cardamomi Composita, . fʒi–ij.

What is the composition of Compound Tincture of Cardamom?

Cardamom, ʒvj; Carraway, fʒij; Cochineal, ʒj; Cinnamon, ʒv; Honey, fʒij; Diluted Alcohol, q. s.

For what are the preparations of Cardamom used?

As carminatives, flavoring agents, and pleasant vehicles.

ADMINISTRATION.

Pain.

℞ Chloroformi, ... ♏xv.
Tinct. cardamomi comp., . . . fʒiss.
M. Sig.: A teaspoonful every half hour in water.

Tonic.

℞ Strychninæ, ... gr. j.
Acidi sulphurosi, ... fʒss.
Glycerini, ... fʒj.
Tincturæ cardamomi comp., . . . fʒiij.
Aquæ, ... ad fʒvj.
M. Sig.: A teaspoonful three times a day.

℞ Tincturæ cardamomi comp., . . . fʒj
Infusi sennæ, ... fʒiij.
Infusi gentianæ, ... fʒvj.
M. Sig.: Senna and gentian mixture.

Phosphatic Deposits.

℞ Acidi phosphorici *diluti*, ... fʒss.
Infusi calumbæ, ... fʒvij.
Tinct. cardamomi comp., ... fʒss.
M. Sig.: A tablespoonful in sweetened water every four hours.

ZINGIBER.

What is Ginger?

The rhizome of the Zingiber Officinale.

Where is it found?

In India, Jamaica, Africa, and the East and West Indies.

What varieties are there?

The Green, the Black, and the White.

How do they differ?

Green Ginger is the fresh root, Black Ginger is the dried root with the epidermis adherent, White Ginger is the dried root with the epidermis removed.

What are its active principles?

A resin and a volatile oil.

For what is Ginger used?

As a carminative to expel flatus and prevent the griping of purgatives, and as a stimulant in hot infusion in suppressed menstruation.

What preparations are officinal?

Zingiberis Extractum Fluidum,	. .	♏x.
Oleoresina Zingiberis,	. . .	♏ss–ij.
Syrupus Zingiberis,	. . . .	ʒss.
Tinctura Zingiberis (20–100),	. .	ʒss–j.
Trochisci Zingiberis,	. . .	āā gr. ij.

ADMINISTRATION.

Cramps.

℞ Pulveris zingiberis, ... gr. xv.
Ammonii carbonatis, ... gr. viij.
Tincturæ cinnamomi, ... ʒij.
Aquæ, ... ʒiss.
Misce. S.: Take all at once.

℞ Pulv. zingiberis,
Pulv. rhei,
Pulv. calumbæ,
Ferri subcarbonatis, . . . āā ʒj.
M. ft. pulv. No. XII.
One powder three times a day.

℞ Sodii bicarb., ... ʒij.
Spts. ammon. aromat., ... f℥ij.
Tinct. zingiberis, ... f℥j.
Infus. gentian comp., . . . ad f℥viij.
Misce. S.: A teaspoonful three times daily.

Dyspepsia.

℞ Pulv. zingiberis, ... gr. xx.
Carbonis, ... ʒj.
Magnesii carbonatis, ... gr. xl.
Misce. Divide in pulv. No. IV.
Sig.: One powder three times daily.

PIPER.

What variety of Pepper is recognized as Piper?

Piper Nigrum, or Black Pepper.

How does White Pepper differ from Black?

White Pepper is the ripe berries devoid of epidermis, and dried. Black Pepper is the dried unripe berries.

What are the active principles?

Piperin, a resin, and a volatile oil.

For what is Pepper used?

To correct flatulence, and as a condiment for other articles of food.

What preparations are officinal?

Oleoresina Piperis, ... ♏j.
Oleoresina Piperina, ... gr. i–x.

For what has Piperina been used?

It was supposed to possess very powerful antiperiodic powers, but is seldom used now.

CAPSICUM (CAYENNE PEPPER).

What is Capsicum?

The fruit of the Capsicum Fastigiatum.

What preparations are officinal?

Oleoresina Capsici, ... gr. ss–j.
Infusum Capsici (℥ss–Oj), used as a gargle (unofficinal).
Tinctura Capsici (20–100), . . . ℳxx.
Extractum Capsici Fluidum, . . . ℳv.
Emplastrum Capsici.

What are the uses, therapeutically, of Capsicum?

It is sometimes added to pills to augment their tonic action on the gastric membrane, especially in habitual drunkards. The tincture is frequently given as a substitute for Alcohol and Opium in reforming habitues. In the form of a plaster Capsicum is useful in lumbago and renal congestion.

ADMINISTRATION.

Alcohol Depression.

℞ Tinct. capsici, ... ƒ℥ss.
Tinct. nucis vom., ... ƒ℥ij.
Spts. ammon. aromat., ... ƒ℥iij.
Aquæ aurantii, ... ad ƒ℥vj.
M. S.: A dessertspoonful every four hours.

℞ Tinct. capsici, ... ƒ℥iv.
Potass. bromidi, ... ƒ℥ss.
Spts. ammon. aromat., ... ƒ℥iij.
Aq. camph., ... ad ƒ℥vj.

Dyspepsia.

℞ Tinct. capsici, ... ƒ℥ss.
Acidi hydrochlorici *dil.*, ... ƒ℥j.
Tinct. calumbæ, ... ƒ℥iss.
Vin. pepsin, ... ad ƒ℥iv.
Misce. Sig.: A dessertspoonful after meals.

CAJUPUT.

What is Cajuput?

The volatile oil of the Melaleuca Cajuputi.

Where does this grow?

In the Molucca Islands.

For what is Oleum Cajuputi used?

Internally it has been given in cholera, cholera mor-

bus, intestinal pain, and serous diarrhœa. Externally it has been used as a parasiticide, and as a counter-irritant in rheumatism.

What is the dose?

Ten to fifteen drops.

ADMINISTRATION.

℞ Olei cajuputi, ... f℥j.
Spiritus chloroformi, ... f℥ss.
Tincturæ cinnamomi, . . . ad f℥ij.
Misce. Sig.: A teaspoonful in syrup and water every half hour.

Nerve Stimulant.

℞ Olei cajuputi, ... ♏xvj.
Extracti valerianæ fluidi, . . . f℥ij.
Syrupi acaciæ, ... f℥vj.
Aquæ aurantii florum, ... f℥j.
M. S.: Teaspoonful for a dose.

AURANTIUM.

What portions of the orange are officinal?

The peel of Sweet and Bitter Oranges and their flowers.

What preparations are made from the Bitter Orange?

Extractum Aurantii Amari Fluidum, . f℥ss–j.
Tinctura Aurantii Amari, ... f℥i–ij.

Of what trees are these two varieties of Orange the fruit?

Bitter Orange is the fruit of Citrus Vulgaris; Sweet Orange of the Citrus Aurantium.

What preparations are made from the Sweet Orange-peel?

Syrupus Aurantii.
Tinctura Aurantii Dulcis, . . . f℥i–ij.

For what are Orange-flowers used?

To make Orange-flower Water and its Syrup.

For what are Orange preparations used?

Only as flavoring agents and agreeable vehicles.

What are the officinal preparations of Orange?

Extractum Aurantii Amari Fluidum, . fʒss.
Tinctura Aurantii Amari, . . . fʒi–ij.
Tinctura Aurantii Dulcis, . . . fʒi–ij.
Syrupus Aurantii (orange-peel 5, alcohol 5, precipitated calcium phosphate 1, sugar 60 parts, water q. s. ad 100).
Syrupus Aurantii Florum (sugar 65, orange-flower water 65).
Oleum Aurantii Corticis, . . . ♏i–v.
Oleum Aurantii Florum, ... ♏i–v.
Elixir Aurantii (oil of orange-peel 1, sugar 100, alcohol and water q. s. ad 300).
Spiritus Aurantii.
Aqua Aurantii Florum.

LIMON (LEMON).

What preparations of Lemon are officinal?

Oleum Limonis, ... ♏i–v.
Spiritus Limonis.
Succus Limonis.
Cortex Limonis.
Syrupus Limonis.

What is Lemon?

The fruit of the Citrus Limonum.

On what do its virtues depend?

On the presence of Citric, Phosphoric and Malic Acids.

How is Lemon absorbed?

In the form of Alkaline Citrates, Phosphoric Acid, and Potassium Salts.

For what is Lemon used?

Principally in the treatment of scurvy, in which it is a specific, and as a flavoring agent in the form of the oil and syrup.

ADMINISTRATION.

℞ Succi limonis, ... fʒiss.
Liq. potas. cit., ... fʒij.
Syrup. ipecac., ... fʒss.
M. Sig.: A tablespoonful every four hours.

FŒNICULUM.

What is Fennel?

The fruit of the Fœniculum Vulgare.

Where does it grow?

In Europe.

What preparations are officinal?

Oleum Fœniculi,	♏ii–v.
Aqua Fœniculi (2 parts oil, 1000 water); dose,	f℥ss.

What are the therapeutic uses of Fennel?

As an aromatic stimulant and carminative in flatulent colic, and as a corrective to the griping properties of purgatives.

ADMINISTRATION.

℞ Sennæ,		6 parts.
Magnesii sulphatis, Mannæ,	ää	12 "
Fœniculi,		2 "
Aquæ bullientis,		100 "
Aquæ,	q. s. ad	100 "

Misce. S.: Black draught.

CARUM.

What is Caraway?

The fruit of the Carum Carui.

For what is Caraway used?

As a flavoring agent, in colic, and to prevent the griping of purgatives.

What preparation is officinal?

Oleum Carui, ♏i–v.

ADMINISTRATION.

Compound Tincture of Cardamomi.

℞ Cardamomi,		20 parts.
Carui,		10 "
Cinnamomi,		20 "
Cochineal,		5 "
Glycerin,		60 "
Diluted alcohol,	q. s. ad	1000 "

CORIANDRUM.

What is Coriander?

The fruit of the Coriandrum Sativum.

Whence do we obtain it?

From Europe.

What preparation is officinal?

Oleum Coriandri; dose, ♏ii–v.

For what is Coriander used?

As a flavoring agent, a carminative, and to prevent griping.

ADMINISTRATION.

Confectio Sennæ.

℞	Sennæ,	10 parts.
	Coriandri,	6 "
	Cassiæ fistulæ,	16 "
	Tamarindi,	10 "
	Pruni,	7 "
	Fici,	12 "
	Sacchari,	50 "
	Aquæ,	60 "

ANISUM.

What is Anise?

The fruit of the Pimpinella Anisum.

What preparations are officinal?

Oleum Anisi,	♏i–v.
Aqua Anisi (1 part of oil to 500).	
Spiritus Anisi (oil 10 per cent.),	ʒj.

Into what officinal preparations does Anise enter?

Paregoric, Troches of Liquorice, and Opium.

What are the uses of Anise?

As a carminative, a flavoring ingredient, and to liquefy bronchial secretion.

What is Star Anise?

The fruit of the Illicium Anisatum.

ADMINISTRATION.

Dentition.

℞ Olei anisi, ... ℥ij.
Potas. bromid., ... ʒj.
Mucilag. acaciæ,
Aq. menth. pip., ... āā fʒj.
M. Sig.: A teaspoonful every half hour till relieved.

LAVANDULA.

What preparations of Lavender are officinal?

Oleum Lavandulæ, ... ℥i–v.
Oleum Lavandulæ Florum, . . ℥i–v.
Spiritus Lavandulæ (oil 3, alcohol 97), fʒss.

For what is Lavender used in medicine?

As an aromatic stimulant to the nervous system, and carminative. A preparation formerly officinal as Compound Spirits of Lavender was made as follows:—

ADMINISTRATION.

℞ Oil of lavender, ...	8	parts.
Oil of rosemary, ...	2	"
Cinnamon, ...	18	"
Cloves, ...	4	"
Nutmeg, ...	10	"
Red saunders, ...	8	"
Alcohol, ...	680	"
Water, ...	270	"
Diluted alcohol, . . q. s. ad	1000	"

Dose: fʒi–ij.

ROSMARINUS.

For what is the Oil of Rosemary used?

Chiefly as a stimulant addition to hair tonics combined with Cantharides.

Into what preparations does it enter?

Linimentum Saponis, Tinctura Lavandulæ Composita, and Vinum Aromaticum.

ADMINISTRATION.

Aromatic Wine.

℞ Lavender,	. . . . .	1 part.
Origanum,	. . . . .	1 "
Peppermint,	. . . . .	1 "
Rosemary,	. . . . .	1 "
Sage,	. . . . .	1 "
Wormwood,	. . . . .	1 "
Stronger white wine,	. q. s. ad	100 parts.

SALVIA.

What is Sage?

The leaves of the Salvia Officinalis.

For what is Sage used?

In the form of an infusion it is given to check the night-sweats of phthisis; and, owing to the Tannic Acid it contains, as an astringent gargle.

Into what officinal preparation does it enter?

Vinum Aromaticum.

What is the dose of the powdered leaves?

Gr. xx–xxx.

MENTHA.

How many kinds of Mint are there?

Two,—Mentha Piperita, or Peppermint, and Mentha Viridis, or Spearmint.

What preparations of Peppermint are officinal?

Oleum Menthæ Piperitæ, . . . ♏i–v.
Aqua Menthæ Piperitæ.
Spiritus Menthæ Piperitæ.
Trochisci Menthæ Piperitæ.

What are the officinal preparations of Spearmint?

Oleum Menthæ Viridis, . . . ♏ii–v.
Aqua Menthæ Viridis.
Spiritus Menthæ Viridis, . . . ♏x–xxx.

What are the therapeutic uses of these Mints?

They are used as aromatics, stimulants, and carminatives, relieving nausea and colic; as flavoring additions, and in the form of the oil as local anæsthetics.

What is Menthol?

A preparation of Peppermint Oil and Camphor, used as an external application to neuralgic spots. It is found in the form of cones, known as "Japanese Headache Cure."

MELISSA.

What is the officinal "Balm"?

The leaves and tops of the Melissa Officinalis.

Where does it grow?

In Europe and America.

For what is Balm used?

As a warm infusion to produce perspiration and to impart an agreeable flavor to other infusions.

CALAMUS (SWEET FLAG).

What is Calamus?

The rhizome of the Acorus Calamus.

Where does it grow?

In Europe and North America.

What preparation is officinal?

Extractum Calami Fluidum, ℥xx.

For what is Calamus used?

As a bitter and stomachic tonic. The root is often chewed to stimulate the appetite.

ADMINISTRATION.

℞ Ext. calami fluid., ... f℥j.
Tinct. gent. comp., ... f℥iss.
Syrup. aurantii, ... f℥j.
Aquæ, ... ad f℥vj.
Misce. Sig.: A dessertspoonful three times a day.

EUCALYPTUS GLOBULUS (BLUE GUM-TREE).

What is Eucalyptus?

The leaves of the Eucalyptus Globulus.

Where does it grow?

In Australia.

On what do its virtues depend?

Tannic Acid and a volatile oil with a peculiar mint-like odor and taste.

What is the effect of large doses of Eucalyptol?

It acts as an intense irritant, causing burning in the mouth, free salivation, and epigastric warmth.

What systemic effects follow the injection of twenty drops?

There is a spell of heightened activity, succeeded by a period of quiescence.

What is there peculiar about the symptoms which follow large and persistent doses?

The pulse and temperature fall, the respirations diminish in frequency, and the patient loses control over his muscular system; but the intellectual faculties remain entirely unimpaired.

How does Eucalyptol cause death?

By paralyzing the spinal cord and medulla.

What is the effect of Eucalyptus on arterial pressure?

It lowers it.

How?

By a direct action on the heart.

How is Eucalyptol eliminated?

By the lungs, kidneys, and skin.

What are its therapeutic uses?

As an antiperiodic in malarial districts, as an expectorant in chronic bronchitis, in affections of the respira-

tory and genito-urinary tract, and as a tonic in debilitated states. The leaves are sometimes smoked with Belladonna and Stramonium in the form of cigarettes by asthmatic patients.

What caution must be observed in its use in catarrhal states of the bladder?

Its prolonged use may cause congestion and irritation of the kidneys.

For what is Eucalyptus used externally?

In the form of a tincture and a water as a disinfectant application to ill-conditioned ulcers and wounds.

What preparations are officinal?

Extractum Eucalypti Fluidum, . . . ℳv–f℥j.
Oleum Eucalypti, ... ℳv–f℥j.

How is the oil best administered?

In capsules or in the form of an emulsion.

ADMINISTRATION.

Dry Catarrh.

℞ Potas. iodid., ... ℥ss.
Ext. eucalypt., ... f℥ij.
Vini picis liq., ... f℥vj.
Misce. Sig.: A tablespoonful three times a day.

HYDRASTIS (GOLDEN SEAL OR YELLOW ROOT).

What is Hydrastis?

The root of Hydrastis Canadensis.

On what do its virtues depend?

On a peculiar crystalline principle (Hydrastina) and the alkaloid Berberina.

What effect has Hydrastis on digestion?

It causes an increased flow of saliva and gastric juice, with improvement in the appetite and power of digestion.

How does Hydrastina affect the nervous system?

Similarly to Strychnina, causing centric tetanic convulsions.

What is its physiological antagonist?

Chloral.

How is Hydrastina eliminated?

By the kidneys, specially.

What are the therapeutic uses of Hydrastis?

As a stomachic tonic in atonic dyspepsia and chronic gastric catarrh. It has been recommended as a useful remedy in hemorrhage which follows uterine myomata and congestion.

What are the local uses of Hydrastis?

In the form of the fluid extract it is a useful application in stomatitis, pharyngitis, and catarrhal states of the vaginal and uterine mucous membranes.

What preparations are officinal?

Extractum Hydrastis Fluidum, . . ℥v–℥ij.
Tinctura Hydrastis, ... ℥x–℥j.

What is the dose of the alkaloid Hydrastina?

Gr. $\frac{1}{20}$–$\frac{1}{6}$.

CORNUS (DOGWOOD).

What is Cornus?

The bark of the root of the Cornus Florida.

What are its physical appearances?

It occurs in curved, pale, reddish pieces about one-eighth of an inch thick; inodorous, but having an astringent, bitter taste.

What preparations are officinal?

Extractum Cornus Floridæ, ℥x–f℥j.

For what is it used in medicine?

As a simple bitter and antiperiodic.

OLEUM ERIGERONTIS (FLEABANE).

For what is Oil of Erigeron used?

It is similar to Turpentine, and has been employed in chronic bronchitis, in the intestinal hemorrhage of typhoid fever, in menorrhagia and albuminuria.

In what is the oil soluble?

It is readily soluble in Alcohol.

What is the dose?

♏x–f℥ss.

MINERAL TONICS.

FERRUM (IRON).

What are the solid preparations of Iron?

Ferrum Reductum, ...	gr. ss–ij.
Ferri Hypophosphis.	
Ferri Iodidum Saccharatum.	
Ferri Phosphas, ...	gr. ii–v.
Ferri Pyrophosphas, ...	gr. ii–v.
Ferri Sulphas.	
Ferri Sulphas Exsiccatus.	
Ferri Sulphas Precipitatus, . . .	gr. ii–v.
Ferri Carbonas Saccharatus.	
Ferri Chloridum, ...	gr. i–ij.
Ferri Citras.	
Ferri Lactas, ...	gr. ii–v.
Ferri Oxalas, ...	gr. ii–v.
Ferri Valerianas.	

What are the liquid preparations of Iron?

Tinctura Ferri Chloridi, . . .	♏v–xx.
Liquor Ferri Chloridi.	
Liquor Ferri Nitratis, ...	♏ii–v.
Syrupus Ferri Iodidi, ...	♏x–lx.
Syrupus Ferri Bromidi.	
Liquor Ferri Tersulphatis.	
Liquor Ferri Subsulphatis.	
Tinctura Ferri Acetatis, . . .	♏x–f℥ij.
Vinum Ferri Citratis, ...	f℥i–f℥ss.

What *solid* combinations of Iron with other drugs are officinal?

Ferri et Ammonii Citras,	gr. ii–v.
Ferri et Ammonii Sulphas,	gr. iii–xv.
Trochisci Ferri,	i–iij.
Pilulæ Ferri Compositæ,	ii–vj.
Ferri et Ammonii Tartras,	gr. i–ij.
Ferri et Potassii Tartras,	gr. ii–v.
Ferri et Quininæ Citras,	gr. ii–v.
Ferri et Strychninæ Citras.	

What *liquid* Iron compounds are officinal?

Mistura Ferri Composita,	f℥ss.
Vinum Ferri Amarum,	f℥i–f℥ss.
Mistura Ferri et Ammonii Acetatis,	f℥ss–℥j.

What is Ferrum Reductum?

A fine, gray powder obtained by reducing the Sesquioxide of Iron by means of hydrogen.

What Salts of Iron are soluble in water?

The Citrates, Sulphates, Chloride, Pyrophosphate, and the Tartrates.

What is the difference between the Liquor Ferri Subsulphatis and Liquor Ferri Tersulphatis?

The latter contains twice as much Sulphuric Acid.

What are the ingredients of the Compound Iron Pills?

Myrrh, Carbonate of Sodium, and Sulphate of Iron.

What is the chief indication for the use of Iron?

Anæmia.

What effect has Iron on temperature?

It increases it.

Which preparation of Iron is the best Chalybeate?

Quevenne's Iron, or Ferrum Reductum.

How is Iron eliminated?

In the fæces.

What effect has its use on the fæces?

They are blackened from the presence of Tannates and Sulphurets of Iron.

What is the best method of administering Quevenne's Iron?

In the form of Chocolate Lozenges.

Which are the most astringent preparations of Iron?

Monsel's Solution and the Liquor Ferri Tersulphatis.

How is Ferri Oxidum Hydratum made?

By the addition of Water of Ammonia to a solution of the Tersulphate of Iron.

For what is it used?

As an antidote to Arsenic.

What is its appearance?

A reddish-brown magma.

How much is administered?

A teaspoonful at a time stirred up with water.

How does the foregoing preparation differ from Oxidum Hydratum cum Magnesia?

A thin mixture of Magnesia is used instead of Ammonia.

In what proportions does the Pharmacopœia direct the ingredients to be made?

1000 grains of solution of Tersulphate of Iron are mixed with twice their weight of water and kept in a bottle. 150 grains of Magnesia are rubbed with water to a thin mixture. This is transferred to a 32-ounce bottle, which is then filled with water. When the liquids are required, the Magnesia mixture is gradually added to the Iron until a homogeneous mass results.

What is the composition of the Compound Iron Pills?

Myrrh, Sulphate of Iron, and Carbonate of Sodium.

What preparation of Iron is used locally?

Monsel's Solution, in the form of a spray (f℥–℥viij aquæ), may be applied to stop nose-bleed and pulmonary

hemorrhage, or as a solution to bleeding hæmorrhoids, leech-bites, and the bleeding which follows minor surgical operations.

What are the internal uses of Iron?

Principally as a tonic in conditions characterized by an impoverished state of the blood, *e.g.*, anæmia, diphtheria, anæmic neuralgia, fatty degeneration of the heart, amenorrhœa, spermatorrhœa, and albuminuria.

In what diseases is the Tincture of the Chloride of Iron a specific?

In erysipelas and gleet.

What are the alterative preparations of Iron?

Syrupus Ferri Iodidi, Ferri Hypophosphis, Pil. Ferri Iodidi.

What preparation would you give in hæmatemesis?

Monsel's Solution, gtt. x, in a tablespoonful of water.

What precaution should be observed in administering the Chloride of Iron?

To prevent its coming in contact with the teeth and discoloring them.

How is Tinctura Ferri Chloridi made?

By adding Alcohol to the Liquor Ferri Chloridi.

What preparation of Iron has diuretic properties?

The Tincture of the Chloride.

What do you understand by Ammonio-Ferric Alum?

Ferri et Ammonii Sulphas.

In what condition is it used?

In atonic leucorrhœa.

What effect has Iron on the blood-corpuscles?

It increases their number and their value as ozonizing agents.

What effect has Iron on digestion?

At first it increases the digestive powers and acts as a tonic; but if its use is persisted in for some time it impairs digestion.

ADMINISTRATION.

Anæmia of Malaria.

℞ Quininæ sulphatis, ... ℥ij.
Ferri sulph. exsiccati, ... ℥ss.
M. ft. pil. No. XXX.
S.: One pill three times a day.

℞ Massæ ferri carbonatis, ... ℥j.
Acidi arsenici, ... gr. j.
Quininæ sulph., ... gr. xl.
M. ft. pil. No. XL.
S.: Two pills three times daily.

Malarial Anæmia and Enlarged Spleen.

℞ Quininæ sulph., ... ℥j.
Resinæ podophylli, ... gr. iv.
Ferri sulph. exsiccati, ... gr. xx.
M. ft. pil. No. XX.
S.: One pill three times daily.

Constitutional Syphilis.

℞ Iodoformi, ... gr. xx.
Hydrargyri chloridi corrosivi, ... gr. j.
Ferri reducti, ... gr. xx.
M. ft. pil. No. XX.
S.: One pill three times a day.

Anæmic Epilepsy.

℞ Potassii bromidi, ... ℥j.
Ferri bromidi, ... gr. iv.
Aquæ, ... f℥ij.
Syrupi, ... f℥vj.
Misce. S.: A tablespoonful twice a day.

Prostatorrhœa.

℞ Tinct. ferri chlorid., ... f℥vj
Tinct. cantharid., ... f℥ij.
Misce. Sig.: Fifteen drops in water three times a day.

℞ Ferri lactatis, ... ℥j.
Extracti glycyrrhizæ, ... ℥ss.
Mellis q. s. ut fiant pil. XL.
S.: One pill three times a day.

℞ Tinct. ferri chlorid., ... fʒij.
Acid hydrochloric *dil.*, ... fʒj.
Syrupi zingiberis, ... fʒij.
Aquam, ... ad fʒiv.
Misce. S.: A teaspoonful in water every three hours.

Enuresis.

℞ Tincturæ ferri chloridi, ... fʒij.
Extracti ergotæ fluidi, ... fʒv.
Spiritus chloroformi, ... fʒij.
Tincturæ quassiæ, ... ad fʒiv.
Misce. S.: A teaspoonful in a wineglassful of water.

Erysipelas.

℞ Tincturæ ferri chloridi, ... fʒj.
Syrupi tolutani, ... fʒj.
Liquoris potassii citratis, ... fʒiv.
Misce. S.: A teaspoonful every three hours.

Enterocolitis.

℞ Liq. ferri nitratis, ... ℳxxvij.
Tinct. calumbæ, ... fʒiij.
Syrup. zingiberis, ... fʒiij.
Misce. Sig.: One teaspoonful every four hours.

MINERAL ACIDS.

What Mineral Acids are officinal?

Acidum Sulphuricum. Acidum Hydrochloricum.
Acidum Nitricum. Acidum Phosphoricum.
Acidum Nitrohydrochloricum.

In what way do Acids affect the secretions of the body?

As a general rule Acids check the acid secretions, but increase alkaline secretions.

What effect have they on thirst?

By increasing the secretion of the salivary glands they allay the thirst which arises from dryness of the mouth.

What effect have the Acids on the teeth?

They destroy their earthy constituents.

What is the effect of administering Acids before meals?

They check the secretion of the gastric juice and hinder digestion.

What are the results of prolonged courses of these acids?

A catarrhal state of the alimentary mucous membrane is brought about, with diarrhœa and general wasting.

ACIDUM SULPHURICUM.

What preparations of Sulphuric Acid are officinal?

Acidum Sulphuricum Dilutum and Acidum Sulphuricum Aromaticum.

What percentage of Sulphuric Acid is there in the dilute acid?

Ten per cent.

What are the ingredients of Aromatic Sulphuric Acid?

Sulphuric Acid 200 parts, Tincture of Ginger 45, Oil of Cinnamon 1, and Alcohol to make 1000 parts.

What are the doses of the above preparations?

℥v–xxx, well diluted.

For what is Sulphuric Acid used in medicine?

In the treatment of summer diarrhœas and dysentery, for the prevention of lead-colic, to arrest hemorrhages, and to check excessive perspiration in phthisis.

How is Sulphuric Acid eliminated?

By the kidneys, skin, and bowels.

What takes place when Sulphuric Acid enters the stomach?

It unites with bases, forming insoluble sulphates and precipitating albuminous substances.

How does this affect digestion?

After a time it disorders it.

How is Sulphuric Acid used externally?

In the form of Ricord's paste, and in dilute solution.

What effect has the local application of Sulphuric Acid on tissues?

It is powerfully corrosive, abstracting water from them and leaving them in a blackened, structureless condition.

Which is the most astringent Mineral Acid?

Sulphuric.

What are the symptoms of poisoning by Sulphuric Acid?

Those of violent gastroenteritis, followed by collapse.

What points in the symptoms are diagnostic?

The vomiting of tarry material and the blackened slough produced by the corrosive action of the acid on the mouth and alimentary tract.

What are the antidotes to Sulphuric Acid?

Whitewash, Chalk, Magnesia, Soap, Milk.

What is the *rationale* of administering Chalk or Whitewash?

To form the harmless Sulphate of Calcium.

How should the preparations of Sulphuric Acid be administered?

Freely diluted and given through a straw or glass tube to prevent injury to the teeth.

ADMINISTRATION.

Counter-irritant.

℞ Acidi sulphurici, ... ℥j.
Olei olivæ, ... ℥iv.
S.: Apply as directed.

Ricord's Paste.

℞ Acidi sulphurici,
Carbonis, āā q. s. ut fiat cataplasma.
S.: Apply locally.

Dysentery.

℞ Morphinæ sulphatis, ... gr.j.
Magnesii sulphatis, ... ℥j.
Acidi sulphurici *diluti*, ... f℥ij.
Aquæ, ... f℥iv.
Misce. S.: A tablespoonful every four hours.

Aphthæ.

℞ Acidi sulphurici, ... f℥ss.
Mellis, ... f℥j.
M. ft. linimentum.
S.: Touch the spot with a camel's hair pencil.

Debility.

℞ Acidi sulphurici *diluti*, ... f℥iv.
Syrupi aurantii corticis, ... f℥iss.
Aquæ cinnamomi, ... f℥j.
M. Sig.: A teaspoonful three times a day, well diluted.

ACIDUM NITRICUM.

What effect has Nitric Acid on living tissues?

It is powerfully corrosive, destroying them and leaving a yellow eschar.

For what is it used externally?

As a caustic to destroy hæmorrhoids, warts, chancres, phagedenic ulcers, and unhealthy granulations.

What caution should be observed in its use?

The surrounding healthy tissue should be protected by a layer of soap or oil.

How is the acid applied?

On a splinter of wood or a pledget of cloth or cotton.

How would you arrest its action?

By washing the part with soap-suds.

What are the symptoms of poisoning by Nitric Acid?

Those of a violent gastro-enteritis, similar to that of Sulphuric Acid, with this difference, that the tissues are stained lemon-yellow by Nitric Acid instead of black.

What are the antidotes?

Soap, Milk, Alkalies.

What are the internal uses of Nitric Acid?

Principally in low fevers and biliousness, hepatic congestion, and for the solution of phosphatic deposits; but its place is now taken by Nitromuriatic Acid in all these conditions. It has been highly recommended in whooping-cough.

What preparation is officinal?

Acidum Nitricum *dilutum*, ♏x–xxx, well diluted.

ADMINISTRATION.

℞ Acidi nitrici, ... ♏xxxij.
Syrupi, ... fʒiij.
Tincturæ cardamomi comp., . . . fʒj.
M. S.: Half a teaspoonful every four hours.

℞ Ammoniaci, ... ʒj.
Acidi nitrici *diluti*, ... fʒij.
Aquæ, ... ad fʒviij.
M. S.: A tablespoonful four times a day.

ACIDUM HYDROCHLORICUM.

What is the composition of Hydrochloric Acid Dilute?

Six parts of Acidum Hydrochloricum to thirteen of distilled water.

To what is the yellow coloring of the commercial Hydrochloric Acid due?

To organic impurities or contamination with Sesquichloride of Iron.

What is the dose of Hydrochloric Acid?

Ten to thirty drops, well diluted.

How does Hydrochloric Acid compare in strength with the other Mineral Acids?

It is less corrosive.

What is its employment in medicine?

Principally as an aid to digestion, to prevent the excessive formation of acid, for the relief of intestinal dyspepsia, and to assuage the thirst of fevers.

For what is Hydrochloric Acid used externally?

As an application to ulcers of the mouth.

How is it applied?

Mixed with honey and applied with a camel's hair brush.

ADMINISTRATION.

Gargle.

℞ Acidi hydrochlorici, ... ♏x.
Mellis despumati, ... f℥j.
Infusi cinchonæ, ... f℥iv.
M. ft. gargarysma.

℞ Acidi hydrochlorici *diluti*, . . . ♏xxxvj.
Syrupi gallæ aromatic, ... f℥ss.
Tincturæ cinchonæ comp., . . . f℥j.
M. Sig.: A teaspoonful every two or three hours.

Phosphatic Deposits.

℞ Acidi hydrochlorici *diluti*, . . . f℥j.
Decocti hordei, ... f℥viij.
M. S.: A tablespoonful well diluted three times a day.

ACIDUM NITROHYDROCHLORICUM.

What is the composition of Nitrohydrochloric Acid?

Four parts of Nitric Acid to fifteen of Hydrochloric Acid.

How is the Dilute Acid made?

By the addition of seventy-six parts by weight of distilled water to the above.

What is the dose of Dilute Nitrohydrochloric Acid?

♏v–xx.

In what conditions is it chiefly employed in medicine?

In hepatic torpor, chronic hepatitis, congestion of the liver, biliousness, jaundice, and similar hepatic derangements.

How is it employed?

Both internally and externally.

How is Nitromuriatic used externally?

In the form of baths, or applied to the hepatic region on a piece of flannel.

What should be the strength of the bath?

f℥j of the acid to a gallon of water.

ADMINISTRATION.

℞ Acidi nitrohydrochlorici *diluti*, . . f℥ij.
Tincturæ gentianæ, ... f℥iij.
Syrupi aurantii, ... f℥j.
Infusi aurantii, ... ad f℥v.
Misce. Sig.: f℥ij three times a day.

ACIDUM LACTICUM.

What preparations of Lactic Acid are officinal?

Acidum Lacticum and Syrupus Lactophosphatis Calcii.

What is the dose of Lactic Acid?

♏xv–℥ss.

How is it obtained?

By the fermentation of Sugar of Milk.

In what is it soluble?

Water, Alcohol, and Ether. It is insoluble in Chloroform.

What unpleasant effects follow large doses?

Pain in the stomach, loss of appetite, flatulence, and rheumatic pains.

For what is Lactic Acid employed therapeutically?

In dyspepsia, acidity of the stomach, and heart-burn. In the form of a spray it is used to dissolve the false membrane of croup and diphtheria.

ADMINISTRATION.

Diphtheria.

℞ Acidi lactici, ... f℥iiss.
Aquæ destillatæ, ... f℥x.
M. S.: Use as a spray.

Dyspepsia.

℞ Acidi lactici, ... f℥ss.
Liquoris pepsinæ, ... f℥xij.
M. S.: A teaspoonful three times a day after meals.

PHOSPHORUS.

How is Phosphorus prepared?

By acting on Bone-Ash which contains Phosphate of Calcium, with Sulphuric Acid, and heating the residuum with Charcoal.

What are the physical appearances of Phosphorus?

It is a translucent, nearly colorless, waxy substance.

In what is it soluble?

In Chloroform.

How is Phosphorus absorbed?

In the form of Phosphorus; *not*, as has been supposed, in the form of Phosphoric Acid.

What preparations of Phosphorus are officinal?

Pilulæ Phosphori.
Oleum Phosphoratum; dose, . . . ♏i–v.
Acidum Phosphoricum Dilutum.
Zinci Phosphidum, ... gr. $\frac{1}{50}$–$\frac{1}{20}$.

What effect has the administration of Phosphorus to healthy organisms?

It acts as a stimulant to the nutritive processes, and the compact tissue of the bones is rendered denser.

For what is Phosphorus employed in medicine?

Principally as a tonic in cases of nervous debility, osteomalacia, and rickets. It has been highly recommended in neuralgia.

What are the symptoms of acute poisoning by Phosphorus?

There are no immediate effects. After three hours nausea and vomiting come on, with pain in the stomach. The matters vomited are at first luminous in the dark, and have a strong alliaceous odor. There may be either diarrhœa or constipation, the stools being generally light in color. After a period of thirty-six hours jaundice ensues, appearing first in the conjunctiva or in the urine. Later on delirium and convulsions ensue, and the patient dies from gradual failure of the heart and respiration.

What post-mortem changes accompany the above symptoms?

The *blood-corpuscles* are diminished in size and number. The *blood* loses its power of coagulation, and ecchymoses are frequent. The mucous membrane of the *stomach* presents the appearance of a gastro-adenitis. The *liver* is atrophied, and most of the organs show signs of a general fatty degeneration.

How is Phosphorus eliminated?

As Hypophosphoric Acid.

What are the chemical antidotes to Phosphorus?

Sulphate of Copper, Lime-water, Powdered Charcoal, and the French Acid Turpentine, administered in the form of a gum emulsion.

What substances are found in the urine in cases of phosphorus-poisoning?

Hæmatoidin, Bile Acids, Leucin and Tyrosin.

ADMINISTRATION.

℞ Phosphori, ... gr. ij.
Mucilaginis acaciæ, ... f℥j.
Aquæ, ... f℥v.
Syrupi, ... f℥j.
Spiritus ætheris comp., ... ♏xxx.
M. ft. emulsio.
S.: A tablespoonful every four hours.

℞ Phosphori, ... gr. ij.
Ætheris, ... f℥ss.
Spiritus menthæ piperitæ, ... f℥ss.
M. S.: Take six drops on sugar every four hours.

CARDIAC STIMULANTS.

What are the Cardiac Stimulants?

Drugs which increase the power of the heart and the force of the circulation.

Which are the principal Cardiac Stimulants?

Ammonia, Digitalis, Alcohol, and Turpentine.

AMMONIA.

What preparations of uncombined Ammonia are officinal?

Aqua Ammoniæ, ... ♏v.
Aqua Ammoniæ Fortior.
Spiritus Ammoniæ, ... ♏x–f℥j.
Spiritus Ammoniæ Aromaticus, . . . f℥ss–ij.

What is the physiological action of Ammonia?

If locally applied, it is extremely irritant. When

inhaled it acts as an irritant to the mucous membrane of the air-passages, and may produce œdema of the glottis and suffocation. Taken into the stomach it sets up a gastritis. Combining with the acid of the stomach it enters the blood, producing a marked rise in the arterial tension and an increase in the number of respirations. It is eliminated by the lungs and by the urine.

What effects follow the injection of a large quantity of Ammonia into a vein?

It causes an increase in the respiratory rhythm, a momentary fall in arterial pressure, succeeded by a sudden rise and the development of convulsions, ending in death.

To what is the increase in the respiration due?

To a direct action on the respiratory centres in the medulla oblongata.

To what is the preliminary fall of arterial pressure due?

To the concentrated action of the drug on the heart.

To what is the subsequent rise due?

To the stimulant effect of Ammonia on the accelerator nerves of the heart.

Of what character are the convulsions?

They are spinal.

How does Ammonia affect reflex activity?

It increases it.

In what form is Ammonia eliminated?

As Nitric Acid and Urea.

What is the indication for the use of Ammonia?

Sudden failure of heart, from whatever cause arising.

How is it best administered?

As an intravenous injection.

What Salts of Ammonia are officinal?

Ammonii Benzoas,	gr. v–xv.
Ammonii Carbonas,	gr. v–x.
Ammonii Chloridum,	gr. i–xx.
Trochisci Ammonii Chloridi,	gr. ij each.
Ammonii Valerianas,	gr. i–v.
Ammonii Phosphas,	gr. v–xx.
Ammonii Bromidum,	gr. x–ʒss.
Ammonii Iodidum,	gr. ii–x.
Ammonii Nitras, Ammonii Sulphas,	not used internally.
Linimentum Ammoniæ.	

How does Ammonia itself differ in its action from that of its compounds?

Its action is more prompt and fugacious.

For what is the Carbonate used?

To diminish the acidity of the gastric juice; as a stimulant in pneumonia and delirium tremens, and in all conditions of cardiac depression.

What are the principal uses of Ammonii Chloridum?

As a stimulant expectorant in bronchorrhœa and pneumonia. It is also serviceable in myalgia, migraine, and in gastric and intestinal catarrh.

How often should the preparations of Ammonia be exhibited in heart failure?

Every half hour, as their influence is highly fugacious.

What are the local uses of Ammonia?

In a diluted form it is the best application to the stings of insects. As a blister, Water of Ammonia may be sprinkled on a cloth and placed under a watch-crystal to prevent evaporation. In the form of a liniment it is a favorite counter-irritant.

For what are the Sulphate and Nitrate of Ammonium used?

For the preparation of Ammonio-Ferric-Alum and Nitrous Oxide Gas.

What are the symptoms of ammonia-poisoning?

Those of a corrosive liquid,—pain in the stomach, vomiting, purging, bloody stools, convulsions and collapse.

To what is death due?

To œdema of the larynx and consequent suffocation.

What is the antidote?

Vinegar and Acids.

ADMINISTRATION.

℞ Ammonii carbonatis, ... ℥j.
Sacchari,
Pulveris acaciæ, ... āā ℥iss.
Aquæ menthæ viridis, ... f℥iv.
M. S.: A tablespoonful every two hours.

℞ Ammonii carbonatis, ... gr. viij.
Pulveris zingiberis, ... gr. xvj.
Tincturæ cinnamomi, ... f℥ij.
Aquæ, ... f℥iss.
M. S.: To be taken at once.

℞ Ammonii valerianatis, ... ℥j.
Spiritus curacoæ,
Syrupi, ... āā f℥j.
Aquæ aurantii florum, ... f℥ij.
M. S.: A teaspoonful for a dose.

℞ Ammonii phosphatis, ... ℈ss.
Aquæ destillatæ, ... f℥vj.
M. S.: A tablespoonful every four hours.

℞ Ammonii chloridi, ... ℥ij.
Sacchari, ... ℥j.
Aquæ menthæ viridis, ... f℥iiss.
M. S.: A tablespoonful every three hours.

Inflammatory Swellings.

℞ Ammonii chloridi, ... ℥ij.
Spiritus vini rectificati,
Aquæ, ... āā f℥ij.
M. S.: Lotion.

Myalgia.

℞ Ammonii chloridi, ... ℥ss.
Extracti cimicifugæ fluidi, . . . fʒj.
Glycerini, ... fʒij.
Syrupi tolutani,
Aquæ lauro-cerasi, ... āā fʒj.
Misce. S.: A teaspoonful three times a day.

Bronchorrhœa.

℞ Extracti eucalypti fluidi, . . . fʒj.
Ammonii chloridi, ... ℥ij.
Extracti glycyrrhizæ, ... fʒij.
Glycerini, ... fʒiij.
M. S.: A teaspoonful three times a day.

Raspail's Eau Sedatif.

℞ Liquoris ammoniæ, ... fʒij.
Sodii chloridi, ... ℥ij.
Spiritus vini camph., ... fʒiij.
Aquæ, ... fʒxxxij.

ALCOHOL.

In what forms is Alcohol officinal?

As *Alcohol* containing 94 per cent. of *absolute* Alcohol, and *Alcohol Dilutum* containing 53 per cent.

In what artificial forms is Alcohol used in medicine?

As Brandy, Whisky, Gin, Rum, Champagne, and the various dark and light Wines.

What are the officinal names of the three first-mentioned preparations?

Spiritus Vini Gallici, Spiritus Frumenti, Spiritus Juniperi Compositus.

What proportion of Alcohol, *by volume*, does Brandy contain?

From 46 to 55 per cent.

How old should it be?

At least four years.

What is the strength in Alcohol of Whisky?

From 50 to 58 per cent. by volume.

How old should good Whisky be?

At least two years old.

What Wines are officinal?

Vinum Album and Vinum Album Fortius.

What is the strength of Vinum Album?

Between 10 and 12 per cent. of Alcohol.

What is the composition of Vinum Album Fortius?

White Wine seven parts and Alcohol one part.

For what is Vinum Album Fortius used?

For the preparation of the various Wines of the Pharmacopœia.

What do you understand by "bouquet."

The peculiar odor of the Wine.

To what is this due?

To the action of the free Acids in the Wine or the Alcohol, with the consequent production of an Ether.

What Acids are found in Wines?

Fixed Acids, such as Tartaric, and Free Acids, as Acetic; also Nitric, Tannic, and Carbonic Acids.

How much Acid do the Acid Wines contain?

About one part of Acid and eighteen of Alcohol.

What is the relative composition of Port Wine?

Fifty-three parts of Alcohol and twelve parts of Sugar to one of Acid.

What are the constituents of Sherry Wine?

Thirty-nine parts of Alcohol, one and a half parts of Sugar to one part of Acid.

What do you mean by a *dry* Wine?

One which is free from Sugar.

How does Champagne differ from other Wines?

In the large amount of Carbonic Acid Gas which it contains.

What objection is there to the use of Sweet Wines?

The sugar undergoes acid fermentation and impairs the digestion and appetite.

On what systems of the body is the influence of Alcohol chiefly exerted?

The circulatory and nervous systems.

How does Alcohol affect the circulation?

Small doses increase the rate of the heart and raise the arterial pressure. In all cases large doses depress the heart by a direct action on the heart itself.

What effect has Alcohol on temperature?

When *small* quantities are administered, owing to the increased activity of the circulation, the bodily temperature is slightly elevated. Large doses lower the temperature.

How do large doses cause a diminution of the temperature?

Through their influence on the vaso-motor centres. These being paralyzed, heat-dissipation takes place more readily.

What effect has Alcohol on Carbonic Acid Gas elimination?

It probably diminishes the amount eliminated.

How does it affect the elimination of Urea?

It diminishes the amount excreted.

How is Alcohol eliminated?

By the lungs and kidneys.

What effect has it on the brain?

It acts as a stimulant in small doses, paralyzing it in large.

What effect has Alcohol on digestion?

In small doses, well diluted, it acts as a stimulant to the gastric membrane, improving digestion. Continued use, however, in a concentrated form, will cause gastric catarrh, morning vomiting, and impairment of digestion.

What effect has Alcohol on the liver?

Its long-continued use causes an increase of the connective tissue of the liver, giving rise to the condition known as cirrhosis.

To what class of foods does Alcohol belong?

The force-producers.

Into what is it ultimately split up in the system?

Into Carbonic Acid and water.

How, then, do you account for Alcohol, as such, being found in the urine?

Because the system can only oxidize a certain amount, and the remainder is unchanged.

What effect has Alcohol on reflex activity?

Large doses abolish it.

To what is the abolition of reflex activity due?

To its action on the brain.

What is the main difference between Brandy and Whisky in their physiological action?

Brandy is more constipating.

What are the indications for the use of Alcohol?

Acute heart-failure, continued fevers, chronic diseases, and prostration from poisons.

How should the Alcohol be administered in the first of these cases?

In a warm, concentrated form, in conjunction with some diffusible stimulant, as Ammonia.

What is the best method of administering Alcohol in the continued fevers?

In combination with milk.

What are the guides as to the amount to be administered in typhoid fever?

The temperature, pulse rate, condition of the tongue, and the nervous system.

Is Alcohol an antipyretic?

Only in doses which would be toxic.

How then can it lower the temperature in fevers?

By diminishing the amount of tissue waste.

What precaution is necessary in the employment of Alcohol in chronic diseases?

Lest the habit of chronic alcoholism be induced.

How is it best administered in phthisis?

In conjunction with Cod Liver Oil.

How is Alcohol administered in snake-poisoning?

In large doses,—two, three, or four ounces,—every ten minutes.

What are the external uses of Alcohol?

As an *antiseptic dressing* to wounds, an *evaporating lotion* to bruises and superficial inflammations and as a *hæmostatic* to surfaces of oozing.

ADMINISTRATION.

Wine-Whey.

℞ Sherry, ... Oss.
Boiling milk, ... Oj.
Stir thoroughly and strain.
Sweeten according to taste.

Mulled Wine.

℞ Beat an egg with three ounces of sherry, and add an equal quantity of water.

Milk-Punch.

℞ Brandy, whisky, or rum, ... fʒii–fʒss.
Milk, ... fʒiij
Sugar and nutmeg to taste.

Egg-Nog.

℞ Beat up the yolk of an egg with five ounces of milk and half an ounce of spirit.
Add sugar to taste.

DIGITALIS (FOXGLOVE).

What does the U. S. Pharmacopœia understand by Digitalis?

The leaves of the Digitalis Purpurea, collected from plants of the second year's growth.

What preparations are officinal?

Abstractum Digitalis,	gr. ss–j.
Extractum Digitalis,	gr. ss–ij.
Extractum Digitalis Fluidum,	♏ i–ij.
Tinctura Digitalis,	♏ v–j.
Infusum Digitalis,	f℥ii–f℥ss.

On what do the virtues of Digitalis depend?

On its active principle, Digitalin.

What is the dose of Digitalin?

Gr. $\frac{1}{50}$.

On what systems is the action of Digitalis chiefly exerted?

The circulatory and the motor nervous system.

What effect has Digitalis on the heart?

It increases the force of the systole and prolongs the diastolic pause.

How are these phenomena produced?

By the direct action of the drug on the heart-muscle itself, and its stimulation of the peripheral ends of the pneumogastric.

How do small doses of Digitalis affect the pulse?

The arterial tension is raised and the number of beats per minute is reduced.

How does it increase the arterial pressure?

By stimulating the vaso-motor centres of the cord.

What effect has Digitalis on reflex activity?

Digitalis lessens reflex activity by stimulating Setchenow's centre, and subsequently by paralyzing the spinal cord.

What other drug stimulates Setchenow's centre?

Quinine.

What are the symptoms of poisoning by Digitalis?

A sensation of vertigo and congestion about the head; vomiting of mucus and blood; the eyes are prominent and the sclerotic blue. The latter sign is said to be diagnostic. The pupils are staring and dilated; the pulse becomes feeble, small, and irregular; diarrhœa is present, and abundant salivation. The case ends in convulsions, delirium, and death.

What is the fatal minimum dose of Digitalis?

It is not definitely known. One quarter of a grain of Digitalin has produced very alarming symptoms.

What are the antidotes?

Tannic Acid, evacuation of the stomach and bowels, rest in the horizontal position, and the exhibition of Opium and alcoholic stimulants.

What is the strength of the abstract?

Twice its weight of the crude drug.

How does Digitalis act in heart-disease?

It lengthens the diastolic interval, thus allowing the ventricles to become completely filled. Through its action on the pneumogastric nerves it further prevents irregularity of action, and by its direct action on the heart it strengthens the cardiac beat.

Under what circumstances is its employment inadmissible?

In simple hypertrophy, in aneurism, and capillary fibroma accompanied by weak heart.

What is the effect of giving Digitalis in mitral insufficiency?

More blood is thrown out into the systemic circulation at each beat, and the pulmonic circulation is also increased.

How does Digitalis relieve mitral stenosis?

By lengthening the diastolic pause, and enabling the auricle to be emptied more completely. Thus a greater amount of blood is forced out into the general circulation.

In what conditions is Digitalis employed therapeutically?

Whenever the heart is unequal to the work required of it, in valvular lesions, irritable heart, cardiac dropsy, and sudden syncope from heart failure. It is also used to arrest pulmonary and uterine hemorrhage.

What is meant by the cumulative action of Digitalis?

The occurrence of sudden symptoms of digitalis-poisoning in a person who has been employing it for some weeks continuously.

How may this be obviated?

By abandoning its employment for a few days at intervals of every two or three weeks.

What is the character of the so-called Digitalis pulse?

A tense pulse like that of a hypertrophied heart.

ADMINISTRATION.

Hemorrhage.

℞ Infus. digitalis, ... f℥ij.
Tinct. krameriæ,
Extracti ergotæ fluidi, . . . āā f℥j.
M. Sig.: A tablespoonful p. r. n.

Anæmia.

℞ Pulv. digitalis, ... gr. xl.
Ferri reducti,
Quininæ sulphatis, ... āā gr. xx.
M. ft. pil. No. XX.
Sig.: One pill two or three times a day.

Rheumatism.

℞ Infus. digitalis, ... f℥ij.
Liq. potass. cit., ... f℥iss.
Aceti scillæ, ... f℥ss.
M. Sig.: A tablespoonful every four hours.

Spermatorrhœa.

℞ Potassii bromidi, ... ℥j.
Infus. digitalis, ... f℥viij.
M. Sig.: A tablespoonful morning and evening.

Hæmoptysis.

℞ Pulv. digitalis, ... gr. x.
Pulv. opii, ... gr. v.
Plumbi acetatis, ... gr. xx.
M. ft. pil. No. X.
Sig.: One every four hours.

℞ Extracti digitalis fluidi, ... f℥ij.
Extracti ipecac. fluidi, ... f℥ij.
Extracti ergotæ fluidi, ... f℥ij.
M. Sig.: Half a teaspoonful, as required.

Hæmaturia.

℞ Acidi gallici, ... ℥ss.
Acidi sulphurici *diluti*,
Tincturæ opii deodorati, ... āā f℥j.
Infusi digitalis, ... ℥iv.
M. Sig.: A tablespoonful every four hours.

Palpitation.

℞ Pulv. digitalis, ... gr. x.
Pulv. colchici seminis, ... gr. xx.
Sodii bicarb., ... ℥ss.
M. ft. pil. No. XX.
Sig.: One pill three times daily.

TURPENTINE.

What is Turpentine?

A concrete oleoresin obtained from the Pinus Australis and other species of pines.

How does it occur?

In yellowish, tough masses.

How is the Oleum Terebinthinæ obtained?

By distillation.

Into what officinal preparations does it enter?

Linimentum Cantharides and Linimentum Terebinthinæ.

In what is Oil of Turpentine soluble?

In Alcohol and Ether.

What is the dose of Oil of Turpentine?

$\mathfrak{m}$ v–f $\mathfrak{z}$ss.

What effect has Turpentine on the heart?

It acts as a stimulant, increasing the force and frequency of the pulse.

How does it affect reflex action?

It stimulates the inhibitory reflex centre.

How does it raise arterial pressure?

By stimulating the vaso-motor centres.

What effects follow toxic doses?

Vomiting, purging, and muscular prostration; insensibility, with abolition of the reflex movements; the face is flushed, breathing stertorous; the pupils are dilated; the urine is diminished in quantity and often bloody.

How is Turpentine eliminated?

By the lungs, skin, and kidneys.

What effect have large doses on the kidneys?

They act as irritants, causing the secretion of bloody urine, with pain in the back and strangury.

What are the internal uses of Turpentine?

As a *stimulant* in typhoid pneumonia, and in low forms of puerperal and other fevers; as a *local stimulant* to gastric ulcers and the ulcerated Peyer's gland of typhoid fever, and as a *vermifuge* against the round worm.

How is it best administered?

In the form of an emulsion.

What are the external uses of Turpentine?

As a counter-irritant, in the form of stupes, and as an ingredient of stimulating enemata.

How are Turpentine stupes made?

A piece of flannel dipped into hot water, and then wrung out dry, is next dipped into warm Turpentine, and again wrung out till it is almost dry. This cloth is then laid on the surface for fifteen minutes.

ADMINISTRATION.

Worms.

℞ Olei terebinthinæ, ... f℥j.
Olei ricini, ... f℥iij.
Extracti filicis maris æth., . . . f℥j.
M. ft. haustus.

Enema.

℞ Olei terebinthinæ, ... f℥j.
Mucilaginis amyli, ... f℥xv.

℞ Olei terebinthinæ, ... f℥ss.
Olei ricini, ... f℥iss.
Aquæ fervidæ, ... f℥xiv.
M. ft. enema.

Hemorrhage.

℞ Olei terebinthinæ, ... f℥iij.
Extracti digitalis fluidi, ... f℥j.
Mucilaginis acaciæ, ... f℥ss.
Aquæ menthæ piperitæ, . . . f℥j.
M. Sig.: A teaspoonful every three hours.

℞ Olei terebinthinæ, ... f℥j.
Olei amygdal. express., ... f℥ss.
Tinct. opii, ... f℥ij.
Mucilaginis acaciæ, ... f℥v.
Aquæ lauro-cerasi, ... f℥ss.
M. Sig.: A teaspoonful every four hours.

What is the composition of Turpentine Liniment?

Resin Cerate, 65 parts; Oil of Turpentine, 35 parts.

STROPHANTHUS (KOMBE ARROW-POISON).

What is Strophanthus?

The seeds of the Strophanthus Hispidus.

On what does its value depend?

On the presence of a glucoside Strophantin.

In what is Strophantin soluble?

In water and alcohol.

What preparations are used?

Tinctura Strophanti (1–20), . . . ♏ i–x.
Strophantinum, ... gr. $\frac{1}{100}$–$\frac{1}{60}$.

For what is Strophanthus used in medicine?

As a cardiac tonic, similar to Digitalis.

How is it said to differ from Digitalis?

It does not affect the calibre of the blood-vessels to the same extent.

What advantage is it supposed to have over Digitalis?

Its effects are not cumulative.

In what conditions is it used?

In uncompensated cardiac lesions.

ADMINISTRATION.

℞ Strophantini, ... gr. j.
Aquæ chloroformi, ... f℥j.
M. Sig.: Gtt. v for a dose.

SPARTEINE.

What is Sparteine?

An oily, colorless liquid alkaloid, obtained from the tops of the Sarothamnus Scoparius, or Broom.

What preparation is used?

Sulphate of Sparteine.

What is the dose?

Gr. ss–j.

In what is it soluble?

In water.

For what is it used in medicine?

As a heart tonic, similar to Digitalis.

How soon are its effects manifest?

Within an hour or two.

In what way is it superior to Digitalis?

In the rapidity of its action and its independence of gastric disturbance.

ADONIDIN.

What is Adonidin?

An active principle of Adonis Vernalis.

In what is it soluble?

In Alcohol; not soluble in water.

What are its physical characteristics?

It is an intensely bitter, amorphous substance.

What is the dose?

Gr. $\frac{1}{8}$–$\frac{1}{2}$.

For what is it used in medicine?

As a heart tonic,—acting similarly to, but with greater rapidity than, Digitalis.

How is it best administered?

In compressed tablet form.

REFRIGERANTS.

What do you understand by Refrigerants?

Remedies which are used to allay thirst.

What are the principal Refrigerants?

Citric, Acetic, and Tartaric Acids.

What is the source of Tartaric Acid?

A precipitate, known as Tartar or Argol, which remains after the conversion of the juice of the grape into Alcohol.

How is Tartaric Acid obtained from Tartar?

By first forming a Tartrate of Calcium with lime, and precipitating Sulphate of Calcium by the addition of Sulphuric Acid. The Sulphate of Calcium falls to the bottom, and the Tartaric Acid remains in solution.

What are the physical characteristics of Tartaric Acid?

It occurs in large, white, transparent, six-sided crystals, having a very sour taste, and exhibiting a phosphorescent appearance when rubbed in the dark.

What is the chemical test for Tartaric Acid?

The addition of a neutral solution of Potassa causes a crystalline precipitate of Bitartrate of Potassium.

How is Tartaric Acid eliminated?

By the kidneys.

What effect has it on the urine?

It increases its acidity.

For what is it used in medicine?

Chiefly to render alkaline urine acid, and as an ingredient of Seidlitz Powders.

What are the symptoms of poisoning by Tartaric Acid?

Those of an irritant poison, with convulsions and extreme feebleness of the heart's action.

What are the antidotes?

Soap, Magnesium, Lime, Carbonate of Potassium or Sodium; alkalies, to neutralize the acidity of the poison.

What is the dose of Tartaric Acid?

Gr. x–xx.

ADMINISTRATION.

℞ Quininæ sulphatis, ... gr. vj.
Acidi tartarici, ... gr. iij.
Syrupi, ... f℥j.
M. Sig.: A teaspoonful for a dose.

ACIDUM CITRICUM.

What is the source of Citric Acid?

Lime- and Lemon-juice.

In what form does it occur?

In rhomboidal crystals; odorless, but having a very sour, acidulous taste.

In what is it soluble?

Water and Alcohol.

In what form is it used in medicine?

As Lime- or Lemon-juice,—Succus Limonis.

What are the therapeutic uses of Lime-juice?

As a refrigerant drink in *fevers*, in the form of lemonade; in the treatment of *acute rheumatism* and torpidity of the *liver;* as a prophylactic against *scurvy*, and to check the formation of acids in the stomach.

ADMINISTRATION.

℞ Succi limonis, ... f℥iv.
Sacchari albi, ... ℥iv.
Aquæ bullientis, ... Oj.
M. Strain when cold.

Artificial Lemonade.

℞ Acidi citrici, ... ℥j.
Olei Limonis, ... gtt. iv.
Aquæ, ... Oj.
M.

ACIDUM ACETICUM.

In what forms is Acetic Acid officinal?

Acidum Aceticum (36 per cent. absolute acetic acid).
Acidum Aceticum Dilutum (acetic acid, 17 parts; water, 83 parts); dose, f℥i–ij.
Acidum Aceticum Glaciale.

For what is Acidum Aceticum Dilutum used?

For the preparation of the Aceta or Vinegars of the United States Pharmacopœia, as a local application to check perspiration and reduce the temperature of fever patients, and also as an enema for the destruction of ascarides.

What is the strength of Vinegar?

About five per cent. of Acetic Acid.

For what is it employed in medicine?

Chiefly as an application for sun-burn, and as a gargle in sore throats.

For what is Glacial Acetic Acid used?

As a *caustic* for the destruction of warts and *parasiticide* in ringworm, etc.

ADMINISTRATION.

℞ Vinegar, ... f℥iij.
Honey, ... f℥ij.
Water, ... Oiij.

Sick Headache.

℞ Vinegar, ... f℥j.
Tincturæ cardamomi comp.,
Syrupi, ... āā f℥ss.
Aquæ, ... f℥x.

CARDIAC SEDATIVES.

What do you understand by a Cardiac Sedative?

A drug which decreases the activity of the circulation.

In what way may this effect be accomplished?

By simple depression of the heart's action, or by the additional depression of the vaso-motor system.

What are the principal Cardiac Sedatives?

Tartar Emetic, Veratrum Viride, Arnica, Aconite, and Hydrocyanic Acid.

TARTAR EMETIC.

What is Tartar Emetic?

A Tartrate of Antimony and Potassium.

What are its physical appearances?

Tartar Emetic is a white granular powder, having at first a sweet, but afterward disagreeable, metallic taste and a feebly acid reaction.

In what is it soluble?

In water; it is insoluble in Alcohol.

How is Tartar Emetic prepared?

By boiling the Oxide of Antimony in a solution of the Bitartrate of Potassium.

For what is Tartar Emetic used in medicine?

As an emetic and arterial sedative.

What dose is administered for its emetic effects?

From gr. ss–j.

What are the symptoms of poisoning from Tartar Emetic?

Nausea and vomiting, accompanied by gastric and abdominal pain, with great weakness; the salivary and perspiratory secretions are increased; violent purging takes place, with discharges which resemble those of

cholera; the exhaustion becomes extreme, the features livid and pinched, and the patient dies from asthenia, preceded by convulsions or stupor.

How does Tartar Emetic affect the frog's heart?

The contractions are lessened in frequency and force, and its action is finally arrested in diastole.

In what way is this brought about?

By the direct action of the drug on the heart itself and the vaso-motor system.

How does it affect the pneumogastric nerve?

It paralyzes its peripheral ends.

How does Tartar Emetic affect the cord?

It paralyzes the sensory tract of the cord.

In what doses is Tartar Emetic used as an emetic?

Gr. ss–j.

How does it cause vomiting?

Partly by its action on the centres in the cord and partly by its local influence on the membrane of the stomach.

What effect has the constant employment of Tartar Emetic on the internal organs?

It causes them to undergo fatty degeneration.

What is the minimum fatal doses of Tartar Emetic?

Three-quarters of a grain have caused death in a child; two grains have proved fatal to an adult.

What is the antidote to Tartar Emetic?

Tannic Acid, forming an insoluble tannate.

What preparations contain Tartar Emetic?

Vinum Antimonii (2 grains of tartar emetic to the ounce); dose, . .	℥v–xv.
Syrupus Scillæ Compositus (3 parts of tartar emetic in 2000); dose, . .	℥v–f℥j.

N. B.—One ounce contains about gr. iij.

What other preparations of Antimony are there besides Tartar Emetic?

Antimonii Oxidum; dose, ... gr. i–iij.
Antimonii Sulphidum; dose, ... gr. ¼–j.
Antimonii Sulphidum Purificatum, . . gr. ¼–j.
Antimonium Sulphuratum, ... gr. i–v.
Pilulæ Antimonii Compositæ (Plummer's pills).
Pulvis Antimonialis, or James' powders (calomel, sulphurated antimony, gr. ss).
Mistura Glycyrrhizæ Composita (Brown mixture).

For what is Tartar Emetic used in medicine?

In the first stages of catarrh, when the mucous membrane is dry and swollen, it is employed to aid secretion and promote perspiration, and as a hypnotic to produce sleep where wakefulness and delirium is due to cerebral congestion.

What caution must be observed in the use of Tartar Emetic?

It is a very powerful depressant, and is only applicable to sthenic cases.

ADMINISTRATION.

Bronchial Catarrh.

℞ Antimonii et potassii tartratis, . . gr. ss.
Morphinæ acetatis, ... gr. ss.
Aquæ, ... f℥ij.
M. Sig.: A teaspoonful every two hours.

Spasmodic Asthma.

℞ Antimonii et potassii tartratis, . . gr. j.
Ammonii chloridi, ... gr. lxxx.
Extracti glycyrrhizæ, ... gr. xx.
Morphinæ muriatis, ... gr. j.
Syrupi tolutani,
Aquæ lauro-cerasi, ... āā f℥j.
M. Sig.: A teaspoonful every three or four hours.

Typhoid Delirium.

℞ Antimonii et potassii tartratis, . . gr. j.
Morphinæ sulphatis, ... gr. iss.
Aquæ lauro-cerasi, ... f℥j.
M. Sig.: A teaspoonful every three hours.

VERATRUM VIRIDE (AMERICAN HELLEBORE).

What is Veratrum Viride?

The root-stock of Veratrum Viride, a perennial herb indigenous to North America.

On what do its virtues depend?

On two alkaloids,—Jervia and Veratroidia.

What is the main difference in their action on the economy?

Veratroidia is more irritant and always causes vomiting; Jervia does not produce vomiting.

What phenomena are exhibited by an animal poisoned with Jervia?

Muscular weakness, followed by tremors and convulsions. The pulse is lessened in frequency as long as the animal is quiet; during the convulsions it is very rapid; the arterial pressure falls continuously, and the animal dies from asphyxia.

What are the effects of a poisonous dose of Veratroidia?

Similar to those produced by Jervia, with the addition of purging and vomiting.

How does Jervia lower arterial tension?

By its direct action on the heart and by its depressing effect on the vaso-motor centres.

What effect has Jervia on reflex activity?

It abolishes it by its direct action on the spinal cord.

To what are the convulsions produced by Jervia due?

To its depressing effect on the cerebrum.

How does Veratroidia affect the circulation?

The rapidity of the pulse and the arterial pressure are at first lessened; then the beats of the heart regain their strength, and the arterial pressure becomes normal; suddenly the pulse rate becomes very rapid, the heart-beats weaker, but the arterial pressure rises.

To what is the decrease in the pulse rate due?

To the stimulating effect of Veratroidia on the pneumogastric nerve.

How do you explain this subsequent rise?

It is due to the asphyxia which the drug causes.

How does Veratroidia affect the pneumogastric nerves?

It acts as a powerful stimulant in small doses. Large doses paralyze the pneumogastric.

What is the physiological action of Veratrum Viride?

It is a combination of the physiological actions of Jervia and Veratroidia. It is a powerful spinal and arterial depressant. It diminishes the force and frequency of the pulse and produces general vaso-motor paralysis.

What are the symptoms in man of poisoning by Veratrum Viride?

Nausea, vomiting, and muscular prostration. The skin is cold and bedewed with moisture; the pulse is running and thready; faintness, dimness of sight, and giddiness come on; the respiration becomes shallow and slow. Owing to the vomiting which it causes, this drug brings about its own ejection from the system; hence no fatal cases have yet been recorded.

What preparations are officinal?

Extractum Veratri Viridis Fluidum, . . ♏ii–v.
Tinctura Veratri Viridis, ... ♏ii–v.

For what is Veratrum Viride used therapeutically?

Only for the reduction of excessive cardiac action, *e.g.*, in excessive hypertrophy, puerperal convulsions, and the early stage of sthenic cases of pneumonia.

What is the best method of its administration?

In increasing doses, preceding each dose with a corresponding amount of Laudanum to prevent the occurrence of vomiting.

ADMINISTRATION.

℞ Tincturæ veratri viridis, ... ♏xv.
Spiritus ætheris nitrosi,
Syrupi ipecacuanhæ, ... āā f℥ss.
Misce. Sig.: Fifteen drops every three hours.

VERATRINA.

What is Veratrina?

An alkaloid prepared from the seeds of the Asagræa Officinalis.

What are its physical appearances?

A grayish-white amorphous powder, without odor, but having an acrid taste.

In what is it soluble?

In Alcohol; hardly soluble in water.

Into what officinal preparations does it enter?

Oleatum Veratrinæ and Unguentum Veratrinæ.

What is the physiological action of Veratrina?

Applied externally it is a powerful irritant. On the mucous membrane of the nose it acts as an irritant, causing excessive sneezing, with bloody discharges; taken into the stomach it sets up a gastro-enteritis,

followed by general muscular weakness, clammy skin, rapid, irregular pulse, and finally collapse.

What effect has Veratrina on the muscles?

It acts as a direct poison.

How does it affect the pneumogastric nerve?

It first stimulates and subsequently paralyzes it.

What is its effect on the heart?

It first stimulates and finally paralyzes the ganglia of the heart.

How does it affect respiration?

Veratrina depresses the respiratory centre in the medulla oblongata and subsequently completely paralyzes it.

For what is Veratrina used medicinally?

Solely externally, in the form of the ointment, for the relief of neuralgia, headache, myalgia, etc.

ADMINISTRATION.

Neuritis.

℞ Hydrarg. protiodid., ... ℥j.
Veratrinæ, ... ℈ss.
Cosmoline, ... q. s. ad ℥j.
M. ft. unguent.
Sig.: Apply locally.

ACONITUM (MONK'S HOOD).

What is Aconite?

The root of the Aconitum Napellus.

What domestic article does it resemble?

Horse-radish.

How may it be distinguished from horse-radish?

By its brown color and the absence of the characteristic odor of horse-radish when scraped.

On what do its virtues depend?

On an active principle known as Aconitina.

What effect has Aconite on the heart?

It depresses the circulation by its direct action on the heart.

How does its action in this respect differ from that of Tartar Emetic?

In not affecting the vaso-motor centres.

What effect has Aconite on the motor and sensory nerves?

It paralyzes the sensory nerves, beginning at their periphery.

How does Aconite affect respiration?

It paralyzes the respiratory centres.

What are the symptoms of aconite-poisoning?

A tingling sensation is experienced in the mouth, which subsequently extends over the entire surface of the body. Gastric pain, nausea, with vomiting ensue; great muscular weakness is felt; the pulse decreases in frequency, becoming weak, intermittent, and finally imperceptible; the respirations are irregular and feeble; the skin is clammy and insensible; the mind remains clear to the last; the countenance is livid, the pupils dilated, and the eyeballs prominent; convulsions may or may not be present. Death follows suddenly upon any exertion on the part of the patient.

What are the antidotes to aconite-poisoning?

Alcoholic stimulants and Ammonia administered hypodermically, combined with the use of the stomach-pump.

What are the therapeutic uses of Aconite?

Principally for the reduction of *fever* in sthenic cases, during the early stages of the exanthemata, tonsillitis, pharyngitis, pneumonia, pleurisy, and peritonitis.

Owing to its effect on the sensory nerves Aconite has been highly recommended in neuralgia.

What preparations are officinal?

Tinctura Aconiti, ...	ℳi–v.
Abstractum Aconiti, ...	gr. ss–j.
Extractum Aconiti, ...	gr. $\frac{1}{6}$–$\frac{1}{3}$.
Extractum Aconiti Fluidum, . . .	ℳi–v.

What external preparations of Aconite are used?

In the form of a liniment and of an ointment Aconite is frequently used to relieve the pain of facial neuralgia and sick-headache.

ADMINISTRATION.

Acute Pleurisy.

℞ Tinct. aconiti, ... fʒij.
Tinct. opii camph., ... fʒvj.
M. Sig.: Eight drops in water every hour.

Neuralgia.

℞ Aconitinæ, ... gr. $\frac{1}{10}$.
Glycerini,
Alcoholis, ... āā fʒj.
Aquæ menth. pip., . . . q. s. ad fʒij.
M. Sig.: A teaspoonful for a dose.

Milk Fever.

℞ Tincturæ aconiti, ... ℳxx.
Antimonii et potassii tartratis, . . gr. ij.
Spiritus ætheris nitrosi,
Syrupi simplicis, ... āā fʒj.
Aquæ aurantii florum, ... fʒij.
M. Sig.: A teaspoonful in a wineglassful of sweetened water every two hours.

ACIDUM HYDROCYANICUM DILUTUM.

How is Hydrocyanic Acid prepared?

By distilling Ferrocyanide of Potassium, Sulphuric Acid and water; or by the addition of 6 parts of Cyanide of Silver to a mixture of Hydrochloric Acid (5 parts) and distilled water (55 parts).

What is the dose of *dilute* Hydrocyanic Acid?

$\mathfrak{m}$i–v.

What preparations contain Hydrocyanic Acid?

Oil of Bitter Almonds, Cherry-Laurel water, and Wild Cherry.

What are the symptoms of poisoning by Hydrocyanic Acid?

Death may occur in one minute, during which time no symptoms are observable. In more prolonged cases the patient falls to the ground in convulsions. The breathing is slow and irregular; the pupils are dilated and the eyes prominent; the mouth covered with bloody froth. Death results from asphyxia.

What are the antidotes to poisoning by Hydrocyanic Acid?

There are no chemical antidotes known. Atropia and Ammonia may be administered hypodermically as respiratory stimulants. Artificial respiration and the alternate use of the hot and cold douche should be tried.

What effect has Hydrocyanic Acid on the blood?

It changes its color from light red to a dark hue.

How does Hydrocyanic Acid affect the heart?

It paralyzes it by a direct action on the heart itself.

What effect has Hydrocyanic Acid on the vaso-motor system?

It primarily stimulates it and finally paralyzes it.

How does it affect respiration?

It paralyzes the respiratory centre.

To what are the convulsions of poisoning by Hydrocyanic Acid due?

They are cerebral in origin and due to the disturbance of the brain circulation.

For what is Hydrocyanic Acid used in medicine?

To allay cough, to arrest nervousness and vomiting, for the pain of gastralgia, and as a local application in pruritus, and diseases characterized by itching.

ADMINISTRATION.

℞ Acidi hydrocyanici diluti, . . . fʒj.
Tincturæ sanguinariæ, ... fʒiv.
Syrupi senegæ, ... ʒss.
Syrupi tolutani, ... ʒij.
Aquæ lauro-cerasi, ... ʒvij.
M. Sig.: One teaspoonful every three hours.

Pruritus.

℞ Hydrargyri chloridi corrosivi, . . gr. j.
Acidi hydrocyanici *diluti*, . . . fʒj.
Emulsionis amygdalæ, ... ʒvj.

℞ Ammonii acetatis, ... ʒj.
Acidi hydrocyanici *diluti*, . . . fʒiss.
Infus. tabacæ, ... fʒviij.
M. Sig.: Sponge twice a day.

℞ Acidi hydrocyanici *diluti*, . . . fʒij.
Acidi borici, ... ʒj.
Aquæ rosæ, ... fʒviij.
M. Apply as directed.

POTASSII CYANIDUM.

What are the physical appearances of Cyanide of Potassium?

It occurs as a white, amorphous powder, deliquescent in damp air, having a sharp, alkaline, bitter-almond taste and a strongly alkaline reaction.

In what is it soluble?

Water; but sparingly soluble in Alcohol.

What is the dose?

Gr. $\frac{1}{12}$–$\frac{1}{6}$.

What are its internal therapeutic uses?

Similar to those of Hydrocyanic Acid.

In what conditions is it used externally?

Locally applied, it gives relief in reflex headache of gastric, pulmonary, or menstrual origin. In the form of an ointment it is used to allay itching.

What precaution is necessary in its use?

To prevent its penetration into abrasions of the cuticle, with the result of dangerous systemic effects.

ADMINISTRATION.

℞ Potassii cyanidi, ... gr. j.
Syrupi limonis, ... f℥ss.
Aquæ destillatæ, ... f℥iiiss.
M. Sig.: A tablespoonful every two hours.

Urticariæ.

℞ Potassii cyanidi, ... gr. vj.
Pulveris cocci, ... gr. j.
Unguenti aquæ rosæ, ... ℥j.
M. ft. unguentum.

Eczema with Pruritus.

℞ Potassii cyanidi, ... gr. v.
Sulphuris,
Potassii bicarbonatis, . . . āā ℥ss.
Pulveris cocci, ... gr. vj.
Axungiæ, ... ℥j.
M. ft. unguentum.

Pruritus.

℞ Potassii cyanidi, ... gr. xv.
Aquæ lauro-cerasi, ... f℥viij.
M. ft. lotio.
Sig.: Apply locally.

ANTISPASMODICS.

For what are the Antispasmodics used?

To allay nervousness and subdue spasms.

Which are the most important members of the class?

Musk, Valerian, Camphor, Hoffman's Anodyne, Coffee, and Sumbul.

MOSCHUS.

What is Musk?

A highly odoriferous secretion from the preputial glands of the musk-deer of Thibet.

What is its appearance?

Irregular grains of a reddish-brown color, enclosed in sacks around the orifice of which hairs are arranged in a concentric manner.

What preparations are officinal?

Moschus, ...	gr. v–xv.
Tinctura Moschi, ...	f℥ss–f℥ij.

What is the strength of the tincture?

Ten per cent.

For what is Musk used in medicine?

In nervous prostration, hysterical convulsions, in hiccough, and the delirium of low fevers.

How is it administered?

In the form of an emulsion, with mucilage, or as the tincture.

What objections are there to its use?

Its excessive adulteration and high price.

CASTOREUM.

What is Castor?

An unctious material obtained from the preputial follicles of the beaver.

What are its therapeutic uses?

Similar to those of Musk, than which it is much weaker.

What preparation is officinal?

Tinctura Castorei.

ADMINISTRATION.

Hysteria.

℞ Tinct. castorei,
Tinct. valerianæ ammon.,
Tinct. asafœtidæ, ... āā f℥ij.
Aquæ camph., ... ad f℥viij.
M. Sig.: A teaspoonful every hour.

VALERIANA.

What is Valerian?

The rootlets and rhizome of the Valeriana Officinalis.

On what do its active principles depend?

On an oil,—Oleum Valerianæ.

What are the physiological effects of large doses of Valerian?

It produces a sense of mental exhilaration, with quickening of pulse and increased cardiac action; a feeling of warmth in the stomach is experienced, followed by nausea and epigastric pain. The sensation of ants crawling on the hands and feet has been sometimes complained of.

What preparations of Valerian are officinal?

Abstractum Valerianæ,	**gr. v–xx.**
Extractum Valerianæ Fluidum,	♏ x–xx.
Tinctura Valerianæ (20 per cent.),	f℥ss–ij.
Tinctura Valerianæ Ammoniata,	f℥ss–ij.
Oleum Valerianæ,	**♏ii–v.**

How is Valerianic Acid obtained?

By the action of Chromic Acid upon Amylic Alcohol.

For what is it employed?

For the preparation of the various salts known as Valerianates.

What preparations of Valerianic Acid are officinal?

Ammonii Valerianas,	**gr. ii–x.**
Ferri Valerianas,	**gr. i–iij.**
Quininæ Valerianas,	gr. i–iij.
Zinci Valerianas,	**gr. ss–iij.**

What are the therapeutic uses of Valerian?

In the treatment of nervous excitement, hysterical and hypochondriacal flatulence, and in all cases of an over-excitable or exhausted nervous system.

For what is Valerianate of Ammonium used?

Principally in *nervous headache* and *neuralgia.*

How is it administered?

In the form of the Elixir Ammonii Valerianatis.

ADMINISTRATION.

℞ Acid. phosphorici *diluti,* . . . fℨj.
Elixir calisayæ, ... fℨvj.
Elixir ammonii valerian., . . . fℨij.
Glycerin., ... fℨiij.
Vini xerici, ... q. s. ad Oj.
M. Sig.: An ounce three times a day.

℞ Zinci valerianatis, ... gr. xxiv.
Quininæ sulph., ... gr. xij.
Extracti lupuli, ... q. s.
M. ft. pil. No. XII.
Sig.: One morning and evening.

Cough Mixture.

℞ Ext. valerian. fluid., ... fℨij.
Vin. antimon.,
Tinct. opii camph., ... āā fℨss.
Syrupi, ... fℨij.
Aquæ, ... fℨiss.
M. Sig.: A teaspoonful every two hours.

ASAFŒTIDA.

What is Asafœtida?

A gum resin, having a highly garlicky odor and taste, obtained from the root of the Ferula Narthex and Ferula Scorodosma.

Whence is it obtained?

From Persia and Afghanistan.

On what do its properties depend?

On a volatile oil.

What preparations are officinal?

Tinctura Asafœtidæ, ...	f℥ss–ij.
Mistura Asafœtidæ, ...	f℥ss–ij.
Pilulæ Asafœtidæ (asafœtida and soap, 1–4).	
Pilulæ Aloes et Asafœtidæ, ...	1–4.
Pilulæ Galbani Compositæ, ...	1–4.
Emplastrum Asafœtidæ.	

What objections are there to the employment of Asafœtida?

Its extremely disagreeable odor and taste, the horribly tasting and smelling exudations of gas following its elimination, and its production of extremely offensive stools.

What are its therapeutic uses?

As a powerful antispasmodic, stomachic tonic, expectorant, and carminative.

How is it best employed?

In the form of sugar-coated pills, suppositories, or enemata.

For what are the pills of Aloes and Asafœtida chiefly used?

For the relief of ovarian and intestinal torpidity, with or without hysterical symptoms.

For what is Mistura Asafœtidæ principally used?

For the flatulent colic of infants and of hypochondriacal and hysterical adults.

ADMINISTRATION.

Sympathetic Cough.

℞ Ammonii muriatis, ...	℥j.
Misturæ asafœtidæ, ...	f℥iv.

Misce. Sig.: A tablespoonful, as necessary.

Hysterical Insomnia.

℞ Potass. bromid., ... ℥iv.
Chloralis, ... ℥iij.
Tinct. asafœtidæ, ... f℥iv.
Syrupi, ... f℥j.
Aquæ, ... q. s. ad f℥vj.
Misce. Sig.: A tablespoonful every two hours until sleep is induced.

CAMPHOR.

What is Camphor?

A stearopten or solidified volatile oil, derived from the Cinnamomum Camphor.

How is it obtained?

By boiling the wood and skimming off the Camphor as it rises to the surface when cold. The Camphor is finally purified by sublimation with lime.

Into what officinal preparations does Camphor enter?

Linimentum Saponis, Linimentum Sinapis Compositum, and Tinctura Opii Camphorata.

What is the physiological action of Camphor?

Its effects differ with the individual. Doses which in some produce great depression cause only slight mental exhilaration in others. Moderate doses cause a sensation of quiet and restfulness and the pulse is somewhat accelerated. By large doses the frequency of the pulse is lowered, and a stage of preliminary excitement passes into one of lassitude and giddiness.

What symptoms follow the ingestion of poisonous doses?

Burning pain in the stomach, followed by headache, faintness and vertigo, convulsions, delirium, and insensibility. The skin is pale and covered with sweat; the pulse is small and accelerated.

What effect has Camphor on arterial pressure?

It lowers it by a depressing action on the heart.

What effect has Camphor on sexual excitement?

Large doses allay erotic excitement.

What are the therapeutic uses of Camphor?

Principally as a nervous sedative, to allay sexual excitement, in dysmenorrhœa, and in diarrhœa which is not the result of inflammation.

For what is Camphor-water used?

As a convenient vehicle for more powerful antispasmodics, as a collyrium, and as a mild sedative in nervous restlessness.

What are the external uses of Camphor?

In the form of various liniments it is a useful application in myalgia, lumbago, and neuralgia. Rubbed up with Chloral, it forms a counter-irritating liquid, much used as a paint over the track of painful nerves, and in carious teeth. Dissolved in Ether, it is recommended as an application in erysipelas.

What preparations are officinal?

Aqua Camphoræ; dose, ...	fʒi–fʒj.
Spiritus Camphoræ (10 per cent.), . .	♏v–xx.
Camphora Monobromata, . . .	gr. ii–x.

What are the physical appearances of Bromated Camphor?

It occurs as a crystalline solid.

For what is it used?

As a nervous sedative in infantile convulsions and delirium tremens, and as a sedative in spermatorrhœa.

What is the objection to its employment?

It is so irritating to the stomach that few persons can take it.

ADMINISTRATION.

Summer Diarrhœa.

℞ Spts. camphor.,
Tinct. opii, ... āā f℥ss.
M. Sig.: Ten drops every two hours.

℞ Tinct. opii, ... f℥j.
Tinct. lavandulæ comp., . . . f℥j.
Aquæ camphoræ, ... ad f℥iij.
M. Sig.: A tablespoonful every hour or two.

℞ Camphoræ, ... ℥j.
Ætheris, ... f℥vij.
Tinct. opii, ... f℥j.
M. Sig.: Twenty drops for a dose.

Acute Catarrh.

℞ Camphor., ... 5 parts.
Æther., ... q. s.
Ammon. carb., ... 4 parts.
Pulv. opii, ... 1 part.
M. Sig.: Gr. iii–x for a dose.

Whooping-Cough.

℞ Camphoræ monobromatæ, . . . gr. xlviij.
Mucilaginis acaciæ, ... q. s.
Syrupi tolutani, ... f℥ij.
M. Sig.: Teaspoonful for a dose.

Chordee.

℞ Camphoræ,
Lactucarii, ... āā ℥j.
M. ft. pil. No. XXX.
Sig.: Two pills for a dose.

SUCCINUM.

What is Amber?

A fossil resin, thought to be an extinct coniferous tree, found in alluvial deposits on the southern coasts of the Baltic Sea.

For what is it used in pharmacy?

As the source of the officinal Oleum Succini, or Oil of Amber.

For what is Oil of Amber used?

Diluted with Olive Oil, it has been applied to the spine as a counter-irritant and nerve stimulant. Internally, it is an efficient antispasmodic in hiccough, whooping-cough, and infantile convulsions.

What is the dose?

Gtt. x–xx, given in emulsion.

SPIRITUS ÆTHERIS COMPOSITUS.

What is the composition of Hoffman's Anodyne?

Alcohol, a pint; Ether, half a pint; and Ethereal Oil, six drachms.

What is Ethereal Oil?

It is a heavy oil of wine (prepared by the action of Sulphuric Acid in excess on Alcohol), diluted with an equal volume of strong Ether.

What is the test for the purity of Hoffman's Anodyne?

Forty drops should impart a milky appearance to a pint of water.

What is the dose of Hoffman's Anodyne?

♏x–f ℥j.

What are its therapeutic uses?

As a very efficient nervous sedative, carminative, and stimulant in cardiac failure from valvular disease.

ADMINISTRATION

Flatulence.

℞ Spiritus ætheris compos., . . . ♏xx.
Tinct. cardamom. comp., . . . f℥ss.
M. Take a dessertspoonful.

Globus Hystericus.

℞ Spts. ætheris comp.,
Tinct. valerian. ammon., . . āā f℥j.
M. Sig.: A teaspoonful in water every fifteen minutes till relieved.

HUMULUS.

What preparations of Hops are officinal?

Tinctura Humuli (20 per cent.); dose, . fʒi–ij.
Lupulinum, ... gr. v–xv.
Extractum Lupulini Fluidum, . . . fʒss–j.
Oleoresina Lupulini, ... gr. ii–v.

What is Lupulinum?

A brownish-yellow glandular powder, found at the base of the scales of the Humulus Lupulus or Hop-vine.

What portion of the Hop-vine is used in medicine?

The soft, greenish fruit-cones.

For what are Hops used in medicine?

As a bitter tonic in cases of nervous irritability and as adjuvants to more powerful antispasmodic remedies.

For what is Lupulin used?

In delirium tremens, as a substitute for alcoholic stimulants, and to allay excessive venereal excitement.

ADMINISTRATION.

℞ Tinct. capsici,
Extracti lupulini fluid., . . . āā fʒj.
M. Sig.: A teaspoonful for a dose.

℞ Extracti lupulini fluid., ... fʒj.
Ext. aromatic. fluid.,
Tinct. capsici,
Mucilaginis acaciæ, . . . āā fʒvj.
Aquæ menth. virid., . . . ad fʒiv.
M. ft. emulsio.
Sig.: A teaspoonful, as required.

Albuminuria.

℞ Acidi gallici, ... fʒj.
Acid. sulphurici *diluti*, ... fʒss.
Tinct. lupuli, ... fʒj.
Infusi lupuli, ... ad fʒvj.
M. Sig.: A tablespoonful thrice daily.

LACTUCARIUM.

What is Lactucarium?

The concrete milk-juice of the Lactuca Virosa.

What preparations are used?

Extractum Lactucarii Fluid.,	f℥ss.
Syrupus Lactucarii,	f℥i–f℥j

What are the therapeutical properties of Lactucarium?

It possesses soporific qualities to a mild extent, and is used as a substitute for opium where the idiosyncrasies of the patient toward the latter drug forbid its employment.

CIMICIFUGA (BLACK COHOSH, SNAKE-ROOT).

What part of Cimicifuga is officinal?

The rhizome and rootlets of the Cimicifuga Racemosa.

What are its active principles?

It has not yet been definitely ascertained. Cimicifuga contains, when fresh, a valuable oil, which deteriorates on keeping, Tannic and Gallic Acids, and a resin called Macrotin or Cimicifugin.

What preparations are officinal?

Tinctura Cimicifugæ,	♏x–f℥j.
Extractum Cimicifugæ Fluidum,	f℥ss–ij.
Macrotin (unofficinal),	gr. ss–ij.

For what is Cimicifuga employed therapeutically?

As a stomachic tonic in alcoholic dyspepsia, in acute inflammatory rheumatism, in infantile chorea, and in chronic bronchitis. In fatty and weak heart, when Digitalis is contra-indicated, Cimicifuga may be used. It is also used to relieve the pain of myalgia, ovarian neuralgia, and congestive dysmenorrhœa.

ADMINISTRATION.

Bronchitis.

℞ Ext. cimicifugæ fluid., ... f℥ss.
Tinct. opii deodorat., ... f℥j.
Syrupi tolutani, ... f℥xj.
M. Sig.: A teaspoonful every four hours.

CAFFEINA.

What is Caffein?

A proximate principle prepared from the *seeds* of the Caffea Arabica (coffee) or from the *leaves* of the Camellia Thea (tea).

On what systems is the influence of Caffea chiefly exercised?

The nervous and circulatory.

How does Caffein affect the brain?

It acts as a direct cerebral stimulant.

What effect has it on the heart?

It first stimulates the cardiac muscle and raises the arterial pressure. Large doses, however, subsequently paralyze this viscus.

What effect has Caffein on the muscular apparatus of lower animals?

It acts as a poison to the muscles themselves.

What are the therapeutic employments of Caffein?

For the relief of migraine, in cardiac dropsy, and the diarrhœa of phthisis.

SUMBUL.

What is Sumbul?

The root of the Ferula Sumbul.

Where does it grow?

In the mountains of northern Asia.

What preparations are officinal?

Pulvis Sumbul, ...	gr. xxx–℈j.
Tinctura Sumbul (10 per cent.), . .	♏i–f℥ss.

What are its properties?

It is a slight antispasmodic, similar in its action to Musk and Valerian.

What are its therapeutic uses?

As a sedative and nerve-tonic in hysterical conditions, in the delirium of typhoid and low fevers, and any condition demanding a slight stimulant.

ANALGESICS.

What do you understand by Analgesics?

Drugs which are employed to relieve pain.

Which are the most important Analgesics?

Opium and its derivatives and Indian Hemp.

OPIUM.

What is Opium?

The dried juice of the Poppy, or Papaver Somniferum.

Whence is it obtained?

From Asia Minor.

What are the proximate principles of Opium?

Morphina, Codeina, Narceina, Narcotina, Thebaina, Papaverina, Porphyroxia, Cryptopia, Meconia, Opiana, Paramorphina, Meconic, Theobolactic and Sulphuric Acids, besides Prolopina, Laudamina, Rhœadina, Laudanosina, etc.

What is its principal Alkaloid?

Morphina.

How much Morphine should good Opium contain?

About 9 per cent. at least.

What preparations of Opium are officinal?

Opii Pulvis,	gr. i–iij.
Opium Denarcotisatum,	gr. i–iij.
Extractum Opii,	gr. ss–ij.
Tinctura Opii (laudanum),	gtt. xxv–gr. j.
Acetum Opii,	gtt. xx–gr. j.
Tinctura Opii Camphorata (paregoric, gr. ii–fʒj).	
Tinctura Opii Deodorata,	♏v–fʒj.
Pilulæ Opii,	gr. j.
Pulvis Opii et Ipecac. (Dover's powder).	
Vinum Opii,	♏v–fʒj.
Trochischi Glycyrrhizæ et Opii,	i–iv.

On what does the value of Opium depend?

On the quantity of Morphine present.

What is the officinal strength of powdered Opium?

It should contain not less than 12 nor more than 16 per cent. of Morphina.

What do you understand by denarcotized Opium?

Powdered Opium, freed from narcotine and odorous principles, which are soluble in Ether.

What should be the strength of Opium Denarcotisatum?

It should yield 14 per cent. of Morphine.

What advantages does this preparation possess?

Its use is supposed to be free from the unpleasant after-effects which follow the use of Opium by some individuals.

What is the strength of Laudanum?

Ten per cent.

What is McMunn's Elixir?

Similar to the tincture of deodorized Opium.

What is the strength of the latter?

Ten per cent.

What is Sydenham's Laudanum?

Vinum Opii of 10 per cent. strength.

What is Black Drop?

Vinegar of Opium, or Acetum Opii.

What changes were made in the last Pharmacopœia in the preparations of Opium?

All the liquid preparations were made of the strength of 10 per cent. except Paregoric.

What is the strength of Paregoric?

Two grains of Opium to the ounce.

What is the composition of Dover's Powder?

In every ten grains there are eight grains of Sugar of Milk, one grain of Opium, and one of Ipecacuanha.

What is the composition of Opium Plaster?

Opium, 6 parts; Burgundy Pitch, 18 parts; Lead Plaster, 76 parts.

What Salts of Morphine are officinal?

The Acetate, Sulphate, and Hydrochlorate.

What is the dose of Morphine?

From gr. $\frac{1}{20}$–$\frac{1}{2}$.

How does Morphine compare with Opium in activity?

One-sixth grain of Morphine is equivalent to one grain of Opium.

What effects follow the ingestion of a small dose of Opium?

A feeling of restfulness and quietude comes on gradually and the patient passes into a sleep; on awakening a feeling of depression is experienced, accompanied by headache, with, in some cases, nausea and vomiting.

Into how many stages is opium-poisoning divided?

Three. The *first* is that of bienfaisance; the *second* resembling cerebral congestion; the *third* is that of prostration.

What are the symptoms of the *second* stage of opium-poisoning?

The patient lies in a stupor, but can be made to respond by persistent rousing; the respirations are slow and deep, the pulse slow and strong, the pupils are strongly contracted. If the patient makes an effort to rise the deeply cyanosed appearance of the face disappears.

What are the symptoms of the *third* stage?

Those of profound prostration. The patient cannot be aroused, but lies in a comatose condition, with absolutely contracted pupils. The pulse is feeble, running, and thready; a cold, clammy sweat covers the surface of the body; the respirations grow more feeble and less frequent, and death occurs from gradual failure of respiration.

How do you account for the apparent difference in the action of Opium on the lower animals and on man?

The brain is less highly developed in the lower animals, while the spinal cord is more so; consequently the effects of the drug are more prominently exhibited by the spinal cord in the frog and by the cerebral apparatus in man.

How does Opium in toxic doses affect the frog?

It induces a tetanic state, with spinal convulsions, succeeded by paralysis.

What is the cause of these convulsions?

They are due partly to heightened spinal activity, partly to the action of the drug on the brain, and partly to a direct action of the drug on the muscle-nerves.

To what is the subsequent paralysis due?

To the depression of the spinal cord and to a diminution in the conductivity of the muscle-nerves.

How does Opium affect the pulse?

At first it accelerates it, then slows it, and finally increases its rapidity.

To what is this slow, full pulse due?

To stimulation of the peripheral ends of the cardiac inhibitory nerves and centre.

What is the final rapidity of the pulse due?

To paralysis of the pneumogastrics.

How does Opium affect respiration?

It paralyzes the respiratory centres.

To what is the contracted pupil due?

To stimulation of the oculo-motor centres.

What effect has Opium on the secretions?

It checks secretion.

How does it affect the intestinal tract?

Small doses diminish peristalsis of the intestines by stimulating their inhibitory nervous mechanism; large doses of Opium paralyze the inhibitory apparatus, and thus cause an increase in the peristaltic movements.

What are the main points in the treatment of opium-poisoning?

To evacuate the stomach, to arouse the patient and maintain the circulation.

What kind of an emetic is required?

A stimulant emetic, such as Mustard, Sulphate of Zinc, or Ipecac, and not a depressing emetic like Antimony.

What difficulty attends the administration of emetics?

The sensibility of the nervous system is so deadened by the Opium that emetics often fail to act.

What should then be resorted to?

Washing out the stomach with warm water.

How would you rouse the patient?

By alternate use of hot and cold douches, compelling the patient to walk about, by flagellation with a towel or twigs, and by the stimulus of electric currents.

What antidotes are necessary?

Strong Coffee, Atropina, and Alcohol in the stage of depression.

What is the *rationale* of keeping the patient in a state of activity?

To increase the respiratory movements, and thus prevent the accumulation of carbonic acid gas, which still further paralyzes the respiratory centre.

What is the minimum fatal dose of Opium?

One-sixth of a grain of Morphine has proved fatal to an adult, and one minim of Laudanum to an infant a day old.

What are the chief therapeutic uses of Opium?

(1) To relieve pain, *e.g.*, neuralgia, gastric ulcer, cancer, etc.; (2) to promote sleep, *e.g.*, mania and melancholia, delirium of fevers; (3) to subdue inflammation, *e.g.*, peritonitis, cerebro-spinal meningitis, pleurisy, arachnitis; (4) to check discharges, *e.g.*, acute diarrhœa, dysentery, diabetes; (5) to allay vomiting and coughing, *e.g.*, in dysmenorrhœa, pregnancy, passage of calculi; (6) to check spasms and convulsions in poisoning by alkaloids; and (7) as a sudorific in colds.

What are the main points of difference between Opium and Morphine?

Morphine is less stimulating and convulsant, has less effect on the intestinal tract, but is more hypnotic and anodyne.

What are the external uses of Opium?

Solutions of Morphine are good applications in inflammation of the ear, eye, and as injection in toothache and gonorrhœa. Hot infusions of Opium are applied with great relief to sprains, inflamed surfaces, painful joints, etc.

What is the physiological antagonist to Morphine?

Atropina.

What is the effect of combining their administration?

Their bad effects are mutually corrected. The depression of Morphine is relieved by Atropine, while the delirium and disturbed sleep of Atropine are overcome by the hypnotic effect of Morphine. The depressing effect of Morphine on the respiratory centres is set off by the stimulation of Atropine.

ADMINISTRATION.

Gastralgia.

℞ Morphinæ sulphatis, ... gr. j.
Bismuthi subnitratis, ... ℈iij.
Pulveris aromatici, ... ℥j.
M. ft. pulv. No. XII.
Sig.: A powder in milk before meals.

Iritis.

℞ Morph. sulph., ... gr. ij.
Zinci sulph., ... gr. ij.
Aquæ rosæ, ... f℥j.
M. ft. lotion for the eye.

Dysentery.

℞ Tinct. opii deodorat., ... ♏xv.
Olei olivæ, ... f℥ij.
M. ft. enema.

℞ Ext. opii, ... gr. iij.
Plumb. acetat., ... gr. xij.
M. ft. pil. No. VI.
Sig.: One every two hours.

℞ Magnesii sulph., ... ℥j.
Tinct. opii deod., ... f℥iss.
Acid. sulphuric. *dil.*, ... ♏xl.
Aquæ menth. pip., ... ad f℥iij.
M. Sig.: Three teaspoonfuls every two hours.

Diabetes.

℞ Codeinæ, ... gr. viij.
Syrupi,
Aquæ, ... āā f℥j.
M. Sig.: Half a teaspoonful three times a day.

Sprains.

℞ Plumbi acetatis, ... ℥j.
Tinct. opii, ... f℥j.
Aquæ, ... ad f℥viij.
M. S.: Lotion.

CANNABIS INDICA.

What is Cannabis Indica?

The flowering tops of the Cannabis Sativa.

Where does it grow?

In the East Indies.

What preparations are officinal?

Extractum Cannabis Indicæ, . . . gr. ¼–ij.
Extractum Cannabis Indicæ Fluidum, . ♏ij.
Tinctura Cannabis Indicæ, ... ♏v–f℥j.

On what do the virtues of Hemp depend?

On a resin,—Cannabin.

What is *Churrus?*

An impure resin obtained from the leaves and stems.

What is *Hashish?*

A confection made of the dried leaves and stalks, combined with aromatics and preserved fruits.

What is *Gunjah?*

The female flowering plant.

What is the effect of large doses of Indian Hemp?

It is analgesic and anæsthetic, producing mental intoxication, with sometimes wild delirium. Knowledge of the proper sequence of events is lost and all ideas are generally magnified. Finally sleep comes on, which is unattended by the unpleasant, depressing sensations which follow Morphine.

For what is Indian Hemp used in medicine?

To relieve pain and procure sleep. It has been employed with good effect in impotence, chordee, delirium tremens, and sick-headache.

ADMINISTRATION.

Impotence.

℞ Extract. cannabis indicæ, . . . gr. x.
Ext. ergotin. aquosi, ... gr. xl.
Ext. nucis vom., ... gr. x.
M. ft. pil. No. XX.
Sig.: One morning and evening.

Dysmenorrhœa.

℞ Ext. cannabis indicæ fluid., . . . ℥iss.
Ext. viburni fluidi, ... ʒvj.
Mucilaginis acaciæ, ... fʒiij.
Aq. cinnamomi, ... ad fʒiv.
M. Sig.: Dessertspoonful every six hours.

℞ Ext. cannabis indicæ, ... gr. x.
Ext. opii, ... gr. v.
Ext. hyoscyami, ... gr. x.
Camphoræ, ... gr. xxv.
M. ft. pil. No. X.
Sig.: One pill two or three times daily.

Nervous Headache.

℞ Ext. cannabis indicæ fluid., . . . fʒss.
Pulv. acaciæ, ... ʒv.
Syrup. aurantii, ... fʒij.
Aquæ, ... q. s. ad fʒvj.
M. Sig.: A teaspoonful every three hours.

MYDRIATICS.

What are Mydriatics?

Drugs which possess the property of dilating the pupil of the eye.

What drugs form this class?

Belladonna, Stramonium, and Hyoscyamus.

BELLADONNA (NIGHTSHADE).

What is Belladonna?

The leaves and root of Atropa Belladonna.

On what do its virtues depend?

On an alkaloid,—Atropina.

What preparations are made from the root?

Abstractum Belladonnæ, . . . gr. $\frac{1}{10}$–j.
Extractum Belladonnæ Fluidum, . . ℿi–v.
Emplastrum Belladonnæ.
Linimentum Belladonnæ (camphor, 5 per cent.; fd. ext., 95 per cent.).

What preparations are made from the leaves?

Extractum Belladonnæ *Alcoholicum*, . gr. $\frac{1}{10}$–$\frac{1}{2}$.
Tinctura Belladonnæ, ... ℿj–xxx.
Unguentum Belladonnæ (alc. ext., 10 per cent.).

What is the strength of the abstract?

It represents twice its weight of the root.

What is the best test for Belladonna?

The production of mydriasis when dropped into the eye.

What effects follow the ingestion of a moderate dose of Belladonna?

The throat becomes dry, the fauces reddened, the pupils dilated, and the vision is slightly disordered; the pulse rate is increased, and a peculiar scarlatinal flush appears on the face and neck, afterward spreading over

the surface; the intellect generally remains perfect, or there may be slight giddiness and mental exhilaration.

What is the effect of a poisonous dose?

Wild delirium succeeds to the above symptoms, accompanied by convulsions, and followed by stupor, muscular relaxation, and paralysis.

What effect have small doses of Atropina on the circulation?

They increase the frequency of the pulse and cause a rise in arterial pressure.

Through what agency is this brought about?

Atropina stimulates the accelerator nerves of the heart, and also the vaso-motor centres.

What is the effect of toxic doses?

Large doses paralyze the pneumogastric nerves and directly depress the heart itself.

To what is the dilatation of the arteries in the advanced stage of poisoning due?

To a direct action of the poison on the muscular coat of the arteries.

To what is the delirium due?

To its stimulant effect on the cerebral cortex.

What effect has Atropina on the nervous system?

It depresses the motor nerves and also the sensory.

What is its effect on peristalsis?

It paralyzes the peripheral inhibitory intestinal apparatus, and in full doses paralyzes the muscular fibres of the intestine.

How does Atropina affect respiration?

Large doses accelerate it by directly stimulating the respiratory centres.

How does it cause death through asphyxia?

From exhaustion of the respiratory nerves and from paralysis of the respiratory centres.

How does Atropina affect secretion?

It arrests it by paralyzing peripheral ends of nerves.

How is Atropina eliminated?

By the urine.

How does it affect temperature?

Small doses increase it, large ones lower it.

How does Atropina cause mydriasis?

By paralysis of the fibres of the oculo-motor nerve, and also by stimulation of the sympathetic.

What is the antidote to atropina-poisoning?

Tannic Acid, to form an insoluble tannate, followed by evacuation of the stomach by Tartar Emetic. External stimulation should be maintained as in opium-poisoning.

What are the therapeutic uses of Belladonna?

To *arrest secretion* in acute inflammations of nasal and pharyngeal mucous membranes; to *allay spasm*, intestinal and urethral; in irritable bladder, asthma, and whooping-cough; to *stop sweating* in hyperidrosis, colliquative sweating, and the night-sweats of phthisis; and for the *relief of pain* in neuralgias.

How is Atropina administered?

In pill form or hypodermically.

ADMINISTRATION.

Hemicrania.

℞ Pulv. belladonnæ, ... gr. x.
Ext. digitalis, ... gr. xv.
Ext. valerianæ, ... ʒss.
Quin. sulph., ... ʒss.
Mellis, ... q. s.
M. ft. pil. No. XL.
Sig.: Two pills daily.

Asthma.

℞ Tinct. belladon., ... f℥j.
Spts. ætheris comp., ... f℥j.
M. Sig.: A teaspoonful three times a day.

Bronchorrhœa.

℞ Potass. iodid., ... ℥j.
Acid. nitrici *dil.*, ... ℥iij.
Tinct. belladon., ... f℥j.
Aquæ camphoræ, ... ad f℥iv.
M. Sig.: Dessertspoonful in water three times a day.

Acute Nasal Catarrh.

℞ Tinct. aconiti, ... ♏x.
Tinct. belladonnæ, ... ℥ss.
Syrupi zingiberis, ... ad f℥ij.
M. Sig.: Teaspoonful every hour.

Colic.

℞ Atropinæ sulphatis, ... gr. j.
Zinci sulphatis, ... gr. xxx.
Aquæ destillatæ, ... f℥j.
M. Sig.: Four drops three times a day.

Conjunctivitis.

℞ Atropinæ sulph., ... gr. j.
Hydrarg. oxidi rubri, ... gr. x.
Vaselini, ... ℥j.
M. ft. unguentum.
Sig.: For the eye.

℞ Atropinæ sulphatis, ... gr. j.
Glycerini, ... f℥ss.
M. Sig.: Two drops into the eye.

℞ Extracti belladonnæ, ... gr. ij.
Extracti colocynthidis comp., ... gr. xij.
Extracti gentianæ, ... gr. vj.
Olei carui, ... gtt. iij.
M. ft. pil. No. VI.
Sig.: One at bed-time.

Croup (six months).

℞ Tinct. belladonnæ, ... gtt. iv.
Tinct. opii camph., ... gtt. l.
Pulv. aluminis, ... gr. vj.
Syrup. acaciæ, ... f℥ss.
Aquæ, ... f℥iss.
M. Sig.: Teaspoonful every three hours.

Cystitis.

℞ Atropinæ sulph., ... gr. j.
Acid. acetic., ... gtt. xx.
Alcohol.,
Aquæ, ... ãã f℥ss.
M. Sig.: Four drops in a wineglassful of water before each meal.

℞ Ext. belladonnæ, ... gr. iij.
Pulv. opii, ... gr. xij.
Camphoræ, ... gr. xxx.
Olei theobrom., ... q. s.
M. ft. suppositoria No. VI.
Sig.: One at bed-time.

STRAMONIUM (JAMESTOWN WEED).

What part of Stramonium is officinal?

The leaves and seeds.

On what does its activity depend?

On the presence of an alkaloid,—Daturine.

For what are the leaves used?

Principally in the manufacture of cigarettes and pastils for asthmatics to smoke and for making cataplasms.

What preparations are made from the seed?

Extractum Stramonii; dose, . . . gr. $\frac{1}{6}$–$\frac{1}{2}$.
Extractum Stramonii Fluidum, . . ♏ i–v.
Tinctura Stramonii (10 per cent.), . ♏ v–xxx.
Unguentum Stramonii (extract, 10 per cent.).

What is the physiological action of Stramonium?

Identical with that of Atropina.

What are the therapeutic uses of Stramonium?

As an antispasmodic, especially in the form of cigarettes for asthmatics; in dysmenorrhœa, and as an application to irritable ulcers, inflamed surfaces, and hæmorrhoids.

ADMINISTRATION.

Hæmorrhoids.

℞ Pulv. stramonii, ... ℥j.
Pulv. tabaci, ... ℥ss.
Ext. opii, ... gr. x.
Unguenti, ... ℥ss.
M. ft. unguentum.
Sig.: Apply as directed.

Dysmenorrhœa.

℞ Extracti stramonii,
Extracti hyoscyami,
Extracti opii, ... āā gr. vj.
M. ft. pil. No. XII.
Sig.: One every four hours.

Asthma.

℞ Extracti stramonii fluidi, ... fʒss.
Extracti belladonnæ fluidi, . . . fʒj.
Hyoscyami, ... ℥ss.
Extracti opii. . . . . gr. iij.
Aquæ lauro-cerasi, ... q. s.
Dissolve the opium and moisten the leaves. When dry, roll into twelve cigarettes. Smoke two to four daily.

HYOSCYAMUS (HENBANE).

What does the U. S. Pharmacopœia recognize as Hyoscyamus?

The leaves of the second year's growth collected from the Hyoscyamus Niger.

Where does it grow?

In the northern United States.

What is its active principle?

Hyoscyamina.

What preparations are officinal?

Extractum Hyoscyami Fluidum, . . ♏v–xxx.
Tinctura Hyoscyami, ... fʒj.
Abstractum Hyoscyami, ... gr. iii–v.
Abstractum Hyoscyami Alcoholicum, . gr. j.

For what is Hyoscyamus used in medicine?

Chiefly as a sedative in asthma and as a narcotic when, for some reason, the use of Opium is forbidden. It is employed in acute mania, delirium tremens, and as an adjunct to prevent griping of purgative pills.

What is Hyoscine?

A derivative of Hyoscyamine.

What is its therapeutic employment?

For spermatorrhœa, and in acute mania and delirium to procure sleep.

ADMINISTRATION.

Delirium.

℞ Extracti hyoscyami fluidi, . . . fʒss.
Extracti conii fluid., ... fʒiij.
Chloralis, ... ʒvj.
Mucilaginis acaciæ, ... ʒij.
Aquæ menth. viridis, . . . ad fʒij.
M. Sig.: Teaspoonful in water after meals.

Dysmenorrhœa.

℞ Extracti hyoscyami,
Extracti stramonii, ... āā gr. v.
Extracti belladonnæ, ... gr. iv.
Quininæ sulphatis, ... gr. xl.
M. ft. pil. No. XX.
Sig.: One three times a day.

ANÆSTHETICS.

What are Anæsthetics?

Substances employed to produce loss of sensation.

On what portion of the system is their influence exerted?

On the nerve centres.

Which are the most important Anæsthetics?

Chloroform, Ether, Nitrous Oxide Gas.

CHLOROFORMUM.

How is Chloroform prepared?

By the action of Chlorine upon Alcohol.

What is its appearance?

A colorless, limpid fluid, having a hot, sweetish taste and characteristic odor.

In what forms is it officinal?

Chloroformum Venale (Commercial Chloroform) and *Chloroformum Purificatum.*

What is the test for *purified* Chloroform?

Sulphuric Acid, when shaken up with it, should not separate into a stratum of brownish coloration, and it should not turn red litmus-paper blue.

Into what stages is chloroformic anæsthesia divided?

Into three. The first is similar to alcoholic intoxication, the second is that of insensibility, the third is that of profound narcotic stupor.

What are the symptoms of the *first* stage?

The face is flushed and there is a general exhilaration of the senses comparable to that of alcoholic intoxication, exhibited by talking, laughing, crying, singing, or praying. The pulse is increased in rapidity and the respirations more frequent. The sense of taste and smell are abolished, and though consciousness is not lost, sensation is more or less impaired.

What are the symptoms of the *second* stage?

The patient gradually passes into a state of insensibility, marked by absence of response on the part of the eyelids to conjunctival irritation. The pulse becomes normal or more or less weak, the breathing is quieter, and the cyanosed condition of the face begins to disappear; the muscular system is relaxed, and the arm when

lifted falls without resistance; consciousness and sensibility are lost and the patient lies perfectly quiet.

What are the symptoms of the *third* stage?

Those of profound narcosis. The face is cyanosed; the pulse rapid and weak; the temperature falls; the respirations more and more shallow; the buccal muscles are relaxed and the breathing stertorous, and death may occur from cardiac failure or arrest of respiration.

During which stage are surgical operations performed?

During the second.

What are the contra-indications to the use of Chloroform?

The existence of fatty heart, tumor or abscess of the brain, emphysema.

What are the dangers of incomplete anæsthesia?

The heart is weakened by Chloroform and is paralyzed by the reflex action of the shock to the peripheral nerves.

What preliminaries should be observed previous to administering Chloroform?

The patient should be examined for the contra-indications enumerated above. No food should be permitted for some hours previous; a hypodermic of morphine or the administration of an ounce of brandy may precede the Chloroform.

What are the advantages of Chloroform?

Principally its cheapness and the rapidity of its action and the smallness of the dose required to produce anæsthesia. It is pleasanter for inhaling and not as irritant to the air-passages. The stage of excitement and resistance is shorter and its effects more prolonged.

Its vapor is not inflammable and it is preferable for use at night.

What are its disadvantages?

Its employment is, as contrasted with Ether, extremely dangerous. It is a direct heart-poison, and kills instantly and without preliminary warning.

How is it administered?

In combination with air, in the strength of 3½ per cent. A cone, with an opening in the apex for the admission of air, is made with a towel, and a sponge, very porous, with a few drops of Chloroform, placed inside and held over the nose, or a thin piece of cloth may be laid over the nose and mouth, which have been previously protected with Vaseline from the irritant action of Chloroform, and the drug then dropped cautiously on it.

For what is Chloroform used internally?

A few minims on sugar will often arrest the nausea and vomiting of sickness or pregnancy. A teaspoonful will sometimes abort an attack of intermittent fever. In conjunction with Opium it is an excellent remedy in cholera and cholera morbus. Combined with Croton Oil, it has been used for the destruction of tape-worms. In the form of an ointment, it is an excellent application to allay pruritus.

ADMINISTRATION.

Mistura Chloroformi.

℞	Chloroformi purificati,	8 parts.
	Camphoræ,	2 "
	Ovi vitelli,	10 "
	Aquæ,	80 "

M. Dose, a teaspoonful.

Flatulent Colic.

℞ Spiritus chloroformi,
Tinct. card. co., ... āā f℥ij.
M. Sig.: A teaspoonful every half hour in water.

Pruritus.

℞ Chloroformi, ... f℥j.
Ung. zinci oxidi, ... ℥j.
M. ft. unguentum.

Delirium Tremens.

℞ Spiritus chloroformi,
Tinct. capsici, ... āā f℥j.
M. Sig.: Teaspoonful in water every two hours.

Neuralgia.

℞ Chloroformi,
Tinct. aconit. rad., ... āā f℥ss.
Linimenti saponis, ... f℥j.
M. ft. linimentum.
Sig.: Moisten a piece of flannel and lay it on the part.

Tape-Worm.

℞ Chloroform., ... f℥j.
Olei tiglii, ... ♏j.
Glycerini, ... f℥j.
M. Sig.: Take all at once.

Squibb's Cholera Mixture.

℞ Chloroformi, ... f℥ij.
Tinct. opii,
Spts. camphor.,
Tinct. capsici, ... āā f℥vss.
Alcoholis, ... f℥j.
M. Sig.: Thirty drops in water for a dose.

ÆTHER (ETHYL OXIDE).

What is Æther?

A colorless, volatile liquid, two and a half times heavier than water, prepared by the action of Sulphuric Acid on Ethylic Alcohol.

In what forms is Æther officinal?

As Æther, Æther Fortior, and Æther Aceticus.

Which preparation is used for anæsthetic purposes?

Æther Fortior.

What is its composition?

94 per cent. Ethyl Oxide and 6 per cent. Alcohol.

What other name does it go by?

Sulphuric Ether.

What is the test for Æther Fortior?

In a test-tube, held in the hand, it should boil vigorously on the addition of a piece of broken glass, and should not lose more than one-eighth of its volume when shaken with an equal bulk of water.

What effects follow the inhalation of Ether?

Owing to the irritation to the fauces caused by its vapor, a choky sensation is experienced, with burning in the air-passages. The face assumes a reddish hue; a roaring or buzzing in the ears, with giddiness, is experienced, and surrounding objects begin to fade off in the distance; a species of delirium ensues, patients crying, laughing, fighting, and praying. The respirations now become low, the muscular rigidity passes off, and complete unconsciousness comes on.

How does Ether affect the pulse?

It quickens it and increases its force.

What effect has Ether on respiration?

It first stimulates and then paralyzes the respiratory centres.

In what order does Ether impress the nervous system?

First the brain, then the sensory centres and motor

centres of the cord, and finally the sensory and motor centres of the medulla.

What is the main physiological difference between Ether and Chloroform?

Ether does not depress the heart as Chloroform does, but causes death through asphyxia. Consequently symptoms of Ether narcosis can be treated. We are powerless, however, to obviate the sudden effect of Chloroform on the heart.

What difference is there in the form of administration?

Ether should be given in a concentrated form and in much larger quantity.

What disadvantages does Ether possess compared with Chloroform?

Its vapor is more irritant to the air-passages and causes a greater amount of discomfort to the patient; it is slower in its action, and the stay of Ether excitement is of greater duration; it is apt to cause more vomiting. Owing to the greater bulk of Ether required to produce the same effect Chloroform is preferred in military service.

What preparations are officinal?

Oleum Ætherеum: equal volumes of heavy Oil of Wine and Æther Fortior.	
Spiritus Ætheris (alcohol, 70 per cent.),	♏x–fʒj.
Spiritus Ætheris Compositus (Hoffman's anodyne), ...	♏v–fʒj.
Spiritus Ætheris Nitrosi (sweet spirits of nitre), ...	fʒss–fʒss.

What anæsthetic mixtures are used?

Nussbaum's: Ether, 3 parts; Chloroform, 1; Alcohol, 1.
Vienna Hospital: Ether, 9; Alcohol, 9; Chloroform, 30.
"Vienna Mixture": Ether, 3; Chloroform, 1.

What are the internal uses of Ether?

In sudden sinking spells; in spasmodic attacks, like hiccough and asthma; for nervous headache, and in different forms of colic.

For what is Nitrous Ether used?

As a mild diaphoretic, diuretic, and carminative in household practice, and as an expectorant in cough-mixtures.

ADMINISTRATION.

Fever.

℞ Tinct. aconit. rad., ... ℥xij.
Spts. eth. nit., ... fʒij.
Liq. pot. cit., ... ad fʒiij.
M. Sig.: A teaspoonful every two hours.

NITROUS OXIDE (LAUGHING GAS).

How is Laughing Gas prepared?

By heating Nitrate of Ammonium in a retort gradually and collecting the gas as it comes off in a receiver.

How is it administered?

By holding a mouth-piece connected with the gasometer to the nose and mouth of the patient. This mouth-piece should have a double set of valves to avoid the expired air being rebreathed by the inhaler.

How soon is insensibility produced?

In from half a minute to three.

What effects follow its inhalation?

At first dizziness and ringing in the ears come on, followed by subjective sensations and illusions. The patient sings, cries, sobs, or fights, in the midst of which performances consciousness may be regained. If the gas is pushed further a gradual condition of asphyxia ensues. The face becomes pale; the respirations at first shallow, then stertorous; the face assumes

a fearful aspect, the eyes protruding from their sockets, and the countenance assuming a purplish hue.

What advantages does Nitrous Oxide possess?

It acts very rapidly, is almost absolutely free from danger, and is not attended with bad after-effects.

In what way does it cause narcosis?

By diminishing the cerebral circulation and causing asphyxia.

COCAINE.

What is Cocaine?

A crystalline alkaloid, colorless, having a bitter taste, derived from the leaves of the Erythroxylon Coca, a small shrub growing in Peru, Bolivia, and various parts of South America.

What are its properties?

It is a local anæsthetic, producing a loss of sensation when applied to mucous membranes or when injected subcutaneously into the system.

What preparation is used?

Cocainæ Hydrochloras.

How does it produce anæsthesia?

By paralyzing the terminal filaments of the sensory nerves and causing a condition of anæmia by contracting the arterioles.

In what strength is it used?

Generally in an aqueous solution of from 2 to 4 per cent.

What are the therapeutic uses of Cocaine?

Principally in the form of a 5 per cent. solution as a local anæsthetic in minor surgical operations. Applied with a brush to the nasal mucous membrane, it relieves the congestion of acute nasal catarrh and hay asthma;

internally administered, in the form of Wine of Coca or the fluid extract of Erythroxylon, it is used as a nerve stimulant and stomachic tonic; it has been employed hypodermically with success in chorea, whooping-cough, and asthma, but this practice is not unattended with danger.

How does Cocaine act in hay fever?

It paralyzes the terminal sensory nerves and prevents the peripheral irritation from reaching the centres.

What symptoms follow its prolonged internal use?

Loss of appetite, nausea, and impairment of digestion. The body wastes, the teeth decay, and the breath becomes excessively fetid; the mental powers fail; the character changes, and the patient becomes a physical and moral wreck.

ADMINISTRATION.

Hypnotic.

℞ Cocainæ hydrochloratis, ... gr. xv.
Atropinæ sulphatis, ... gr. ss.
M. ft. pil. No. LX.
Sig.: One at bed-time.

Hay Asthma.

℞ Cocainæ hydrochloratis, ... gr. vj.
Aquæ destillatæ, ... ʒij.
M. Sig.: A few drops on the nasal mucous membrane.

EXCITO-MOTORS.

What do you understand by Excito-Motors?

Drugs which excite the functional activity of the spinal cord, with increased reflex activity and tetanic convulsions.

NUX VOMICA.

What is Nux Vomica?

The seeds of the Strychnos Nux Vomica, a tree growing in the East Indies.

What is the appearance of the seeds?

Flat, circular bodies, of an ashen hue and covered with short hairs; odorless, but having an extremely bitter taste.

On what do the virtues of Nux Vomica depend?

On two alkaloids: Strychnina and Brucina, in combination with an acid,—Igasuric Acid.

What preparations of Nux Vomica are officinal?

Extractum Nucis Vomicæ,	gr. $\frac{1}{4}$–$\frac{1}{2}$.
Tinctura Nucis Vomicæ,	♏ v–xx.
Abstractum Nucis Vomicæ,	gr. i–ij.
Extractum Nucis Vomicæ Fluidum,	♏ ii–iij.

For what is Nux Vomica used in medicine?

As a stomachic tonic in atonic dyspepsia and gastric catarrh; in constipation with atony of the muscular coat of the bowels, and as a uterine tonic in amenorrhœa and post-partum hemorrhage.

What preparation of Strychnine is officinal?

Strychninæ Sulphas; dose, gr. $\frac{1}{60}$–$\frac{1}{20}$.

What results follow the ingestion of a poisonous dose of Strychnine?

Spasmodic twitchings in the muscles of the extremities come on in about fifteen to twenty minutes, followed by the sudden development of a convulsion. The patient falls to the ground, and assumes the opisthotonic position; the eyes are wide and staring, and the corners of the mouth drawn aside, giving rise to the appearance known as the risus sardonicus; at first the face is pale,

but subsequently becomes cyanosed from the induction of asphyxia; the intellect remains unaffected. The patient may die in the first convulsion; if not, a period of quiescence ensues, but the slightest peripheral irritation serves to induce an equally violent series of convulsions; finally the muscles are tired out from excessive action and the patient dies from asphyxia.

To what are the convulsions of Strychnine due?

To the stimulant action of the drug on the motor cells of the cord.

To what is death due?

To exhaustion of the motor nerves from excessive functional activity, and also to the depressing effect of the drug on them.

How does Strychnine affect the circulation?

It causes a rise in the arterial pressure, due to the vaso-motor spasm it produces. Large doses, however, paralyze the vaso-motor centres and cause a fall in the arterial pressure.

What is the antidote to Strychnine?

Tannic Acid, Iodine or one of its salts, followed by rapid evacuation of the stomach, and the subsequent administration of Chloral and Bromide of Potassium every twenty minutes to allay the convulsions.

What is the dose of Strychnine?

Gr. $\frac{1}{60}$—$\frac{1}{20}$.

What are the therapeutic uses of Strychnine?

As a *bitter tonic*, to stimulate the digestion when there is loss of nerve power; as a *nerve stimulant* in depressed conditions of the spinal cord; as a *respiratory stimulant* in bronchitis, emphysema, dyspnœa; as a *muscular tonic* in paralysis of the rectum, bladder,

and infantile paralysis; impotence, hemiplegia, wrist-drop, and whenever there are indications of loss of motor-nerve power.

ADMINISTRATION.

Alcoholic Dyspepsia.

℞ Tinct. nucis vomicæ, ... f℥ij.
Tinct. capsici, ... f℥vj.
M. Sig.: Twenty drops in water every four hours.

Gastric Tonic.

℞ Tinct. nucis vom., ... f℥ss.
Tinct. gentian. com., ... f℥iij.
M. Sig.: A teaspoonful three times a day in water.

Epidemic Dysentery.

℞ Strychninæ sulph., ... gr. ¼.
Acid. sulphuric. *dil.*, ... ℥ss.
Morph. sulph., ... gr. ij.
Aquæ camphor., ... f℥iiiss.
M. Sig.: A teaspoonful every hour or two, well diluted.

Constipation.

℞ Ext. nucis vom.,
Ext. belladonn. alcoholic., . . āā gr. ij.
Ext. aloes aquos., ... gr. iv.
Pulv. rhei, ... gr. viij.
Olei cajuputi, ... gtt. viij.
M. ft. pil. No. VIII.
Take one at bed-time.

Gastralgia.

℞ Quininæ bromidi, ... gr. xxx.
Acidi arseniosi, ... gr. ss.
Ext. belladonnæ, ... gr. iij.
Pil. ferri carb., ... gr. xxx.
Ext. nucis vom., ... gr. v.
M. ft. pil. No. XXX.
Sig.: One pill after meals.

IGNATIA (ST. IGNATIUS BEAN).

What is Ignatia?

The seed of the Strychnos Ignatii, a small plant growing in the Phillippine Islands.

What are its active principles?

Strychnine and Brucin, about 1 per cent. each.

What preparations are officinal?

Abstractum Ignatiæ, ...	gr. ss–j.
Tinctura Ignatiæ (10 per cent.), . .	℥ii–x.

What its therapeutic uses?

Similar to those of Strychnine. Some practitioners prefer it to Strychnine as a stomachic tonic. It is much used in hysteria for the relief of the sensation known as globus hystericus, and for intercostal neuralgia.

PICROTOXIN.

What is Picrotoxin?

A neutral crystallizable principle obtained from the Cocculus Indicus (Fish-berries), a climbing shrub growing in the East Indies.

What is the physical appearance of Picrotoxin?

It occurs in colorless crystals, having a neutral reaction and very bitter taste.

What is the physiological action of Picrotoxin?

It is a cerebro-spinal stimulant, causing nausea, vomiting, muscular twitching, stupor, delirium, and epileptiform convulsions.

How does it cause death?

By paralyzing the heart and arresting it in diastole.

How do the spasms of Picrotoxin differ from those of Strychnine?

By affecting principally the *flexor* muscles, while Strychnine excites the *extensors*.

What is the physiological antidote to Picrotoxin?

Chloral and the anæsthetics.

For what is Picrotoxin employed therapeutically?

In the night-sweats of phthisis, in chorea, sick-headache of ovarian origin, and epilepsy.

What is the dose?

Gr. $\frac{1}{180}$–$\frac{1}{60}$ in pill form.

DEPRESSO-MOTORS.

What are Depresso-Motors?

Drugs which lessen the activity of the spinal cord.

PHYSOSTIGMA (CALABAR BEAN).

What is Physostigma?

An irregular kidney-shaped bean, the fruit of the Physostigma Venenosum, growing in Africa.

What is its active principle?

Physostigmina, or Eserina.

What effect has its local application on the eye?

It contracts it.

What effects follow its ingestion?

It causes contraction of the pupils, giddiness, muscular tremblings, vomiting and purging, and intense muscular weakness, with complete abolition of reflex activity. Death occurs from gradual failure of respiration, the heart after death still continuing to beat.

To what are the convulsive movements due?

To a direct exciting action of the drug on the muscles themselves.

To what is the abolition of reflex activity due?

The depressing effect of the drug on the spinal cord.

How does Calabar Bean affect the heart?

It first slows the action of the heart, causing a rise in the arterial pressure by increasing the power of the inhibitory nerves; subsequently it paralyzes the inhibitory nerves, and the heart's action is more rapid.

What effect has Calabar Bean on the intestines?

It first increases peristalsis, then causes spasmodic contraction, with final relaxation and dilatation.

How does Calabar Bean affect the eye?

It causes contraction by stimulating the oculomotor terminal filaments, and by paralyzing the peripheral ends of the sympathetic.

What preparations are officinal?

Extractum Physostigmatis,	gr. ¼-½.
Tinctura Physostigmatis,	♏v–xx.

For what is it used in medicine?

To excite muscular movements of the intestines, to correct flatulence, and in paralytic conditions of the ocular nervous apparatus.

ADMINISTRATION.

Constipation.

℞ Tinct. physostigmatis,
Tinct. nucis vom.,
Tinct. belladonnæ, ... āā fʒij.
M. Sig.: Thirty drops in water morning and evening.

℞ Extract. physostigmatis,
Extract. belladonnæ,
Extract. nucis vom., . . . āā gr. v.
M. ft. pil. No. X.

℞ Resin. podophylli, ... gr. ij.
Extract. physostigmatis, ... gr. iij.
M. ft. pil. No. VI.
Sig.: One pill at bed-time.

THE BROMIDES.

What Salts of Bromine are officinal?

Potassii Bromidum,	gr. x–ʒij.
Ammonii Bromidum,	gr. x–ʒss.
Sodii Bromidum,	gr. xx–ʒij.
Calcii Bromidum,	gr. xx–ʒij.
Lithii Bromidum,	gr. v–ʒj.

What is the general action of the Bromides?

They are sedatives to the nervous system, lowering reflex excitability, depressing the sexual appetite, and in sufficient doses producing sleep.

What results follow the continued use of the Bromides?

A condition known as *Bromism*, characterized by the appearance of a peculiar rash upon the body and the development of evidences of mental failure. The face is anæmic and pale, and assumes an expression of imbecility. The breath is particularly fetid. The sensibility of the mucous membrane is impaired, and the special senses markedly blunted. Hallucinations of sight and sound have been noticed, and the patient sinks into a condition of general muscular and mental exhaustion.

How is Bromide of Potassium prepared?

By the evaporation of the precipitate which falls on the addition of pure Carbonate of Potassium to a solution of Bromide of Iron.

What are its physical appearances?

It occurs in white prismatic crystals, having a very acrid, saline taste, soluble in water, and partially soluble in Alcohol.

In what order does Bromide of Potassium affect the nervous system?

It affects the receptive centres in the cord, next the ends of the sensory nerves, and subsequently the brain, motor centres, and motor nerves.

How does it affect the heart?

It paralyzes it, and finally arrests it in diastole.

How is it eliminated?

By the breath, kidneys, and bowels.

For what is Bromide of Potassium used in medicine?

As a *cerebral sedative* in acute and puerperal mania, and melancholia; as a *hypnotic* in delirium tremens and ordinary nervous insomnia; as an *antispasmodic* in epilepsy, tetanus, the convulsions of strychnine-poisoning, in infantile convulsions, and in spasmodic asthma; to subdue excessive *reflex activity* in whooping-cough and the reflex vomiting of pregnancy; and as a *sexual sedative* in nymphomania and nocturnal emissions.

How is Ammonium Bromide made?

By precipitating Bromide of Iron with Aqua Ammoniæ, and recovering the salt which is held in solution by evaporation.

What are its physical appearances?

A granular powder, at first colorless, but turning yellow on exposure.

How does it differ from Bromide of Potassium?

It is thought to exert less influence on the heart, but to be more stimulating than the Potassium Salt.

In what diseases is it principally used?

In whooping-cough and acute rheumatism. In the treatment of epilepsy it is frequently combined with its congeners, Bromide of Sodium and Potassium.

How does Bromide of Sodium compare with the other Salts of Bromine?

It is the weakest of the three.

Which is the most hypnotic of the Bromides?

The Bromide of Lithium.

What is Hydrobromic Acid?

A solution of Bromine and Hydrogen in water.

In what form is it used?

As the officinal Acidum Hydrobromicum Dilutum.

What is its strength?

Each drachm represents nine grains of Bromide of Potassium.

For what is Hydrobromic Acid used in medicine?

Chiefly as an addition to Quinine and Morphine, to counteract the unpleasant after-effects which follow the administration of those drugs in susceptible individuals, and in cases where the action of the Bromides is demanded.

ADMINISTRATION.

Teething.

℞ Potassii bromidi, ... ℥ij.
Syrupi simplicis, ... f℥iss.
Aquæ menth. pip., ... f℥ij.
M. Sig.: A teaspoonful every hour or two.

Cardiac Over-Activity.

℞ Potassii bromidi, ... ℥ss.
Infusi digitalis, ... f℥iv.
M. Sig.: A tablespoonful morning and evening.

Flatulent Colic.

℞ Potassii bromidi, ... ℥j.
Olei anisi, ... ♏ij.
Mucilaginis acaciæ,
Aquæ menth. pip. . . . . āā f℥j.
M. Sig.: A teaspoonful every half hour.

Epilepsy.

℞ Potassii bromidi,
Sodii bromidi,
Ammonii bromidi, ... āā ℥iij.
Potassii iodidi,
Ammonii iodidi, ... āā ℥iss.
Ammonii carbonatis, ... ℥j.
Tinct. calumbæ, ... f℥iss.
Aquæ, ... ad f℥viij.
M. Sig.: A teaspoonful and a half before meals.

Nervousness.

℞ Potassii bromidi, ... ℥j.
Ext. guaranæ fluid., ... ℥iss.
Syrupi tolutani, ... ℥iij.
Aquæ, ... q. s. ad f℥vj.
M. Sig.: A teaspoonful three times a day.

Maniacal Excitement.

℞ Potassii bromidi,
Ammonii bromidi, ... āā ℥ij.
Ext. ergotæ fluidi, ... f℥j.
Aquæ cinnamomi, ... ad f℥viij.
M. Sig.: A dessertspoonful in water three times a day.

℞ Quininæ sulphatis, ... ℥ss.
Acidi hydrobromic. *diluti*, . . . ℥j.
Aquæ, ... ad f℥ij.
M. Sig.: A teaspoonful three times a day.

Rheumatic Arthritis.

℞ Lithii bromidi, ... ℥iij.
Syrupi zingiberis, ... f℥ss.
Aquæ, ... f℥iss.
M. Sig.: A teaspoonful thrice daily.

CHLORAL.

What is Chloral?

An oily, pungent liquid, made by the action of Chlorine on Alcohol.

In what form is it officinal?

As Hydrate of Chloral.

What are its physical appearances?

Chloral Hydrate occurs in white, transparent crystals, having a hot, burning taste, and soluble in water, Ether, and Alcohol.

What effect have Alkalies on Chloral?

The addition of an Alkali splits up the Chloral into Formic Acid and Chloroform.

What effects follow moderate doses of Chloral in man?

The patient passes into a quiet sleep.

What symptoms follow toxic doses?

Vomiting and purging; the respirations diminish in number; the pulse becomes thready and weak; the temperature falls; there is complete muscular relaxation and paralysis. The patient passes into a state of coma, and dies from arrested respiration and cardiac failure.

To what is the sleep due?

To the direct action of the drug upon the cerebrum.

Is Chloral anæsthetic?

It is not, unless doses sufficiently large to be toxic are given.

To what is the muscular paralysis due?

To the action of Chloral on the spinal cord.

How does Chloral affect the heart?

In large doses it paralyzes it.

What effect has Chloral on respiration?

Large doses paralyze the respiratory centres.

How is Chloral eliminated?

In the form of Urochloric Acid.

How does Chloral differ in its hypnotic action from Chloroform?

Chloroform is more rapid, but Chloral more lasting in its effects.

What are the therapeutic uses of Chloral?

As a *hypnotic* in cases where *sleeplessness is not the result of pain*,—*e.g.*, in delirium tremens, acute mania, and melancholia; as an *antispasmodic* in asthma, emphysema, whooping-cough, and laryngismus stridulus; as a *sedative* in sea-sickness, the vomiting of pregnancy,

and in cholera morbus; as an *antiseptic* application to foul-smelling ulcers, and, combined with camphor, as a *counter-irritant application* to neuralgic surfaces.

What is the dose?

From 10 to 30 grains, given well diluted in syrup.

What dangers attend its use?

The uncertainty of the effects which follow its employment. Care should be taken in ordering Chloral in cases of weak and fatty heart, atheroma of the vessels, and debilitated systems.

ADMINISTRATION.

Insomnia.

℞ Chloralis, ... ℥ij.
Potassii bromidi, ... ℥iij.
Tinct. opii, ... f℥j.
Syrupi aurantii cort., ... f℥iij.
Aquæ, ... ad f℥ij.
M. Sig.: A teaspoonful for a dose.

Whooping-Cough.

℞ Chloralis, ... ℥j.
Potassii bromidi, ... ℥ij.
Syrup. pruni virgin., ... f℥j.
Aquæ, ... f℥j.
M. Sig.: A teaspoonful three times a day.

Cholera Morbus.

℞ Chloralis, ... ℥iij.
Morphinæ sulph., ... gr. iv.
Aquæ lauro-cerasi, ... f℥j.
M. Sig.: Fifteen drops for a dose.

NITRITE OF AMYL.

What is Nitrite of Amyl?

A clear, yellowish, volatile liquid, having an aromatic odor, made by the action of Nitric Acid on Amylic Alcohol.

How is it administered?

A few drops are placed on a handkerchief and inhaled.

What effect has it on the system?

It dilates the blood-vessels and causes a sensation of fullness about the head, with flushing of the face, rapidity of the heart's action, and deep, labored respiration.

What effect has Nitrite of Amyl on the pulse?

It paralyzes the vaso-motor centres and the muscular coat of the arteries, thus causing a fall in the arterial tension.

To what is the rapidity of the pulse due?

Partly to paralysis of the inhibitory centres, and partly to a direct stimulation of the heart itself.

What effect has Nitrite of Amyl on the spinal cord?

It acts as a depressant to its motor centres.

How is it eliminated?

As a Nitrate.

How does it affect temperature?

Large doses cause a diminution in the temperature by diminishing oxidation.

What effect has Nitrite of Amyl on the blood?

It causes it to assume a chocolate hue.

To what is this color due?

To the formation of a new compound,—Nitrite-oxyhæmoglobin.

What are the therapeutic uses of Nitrite of Amyl?

As an inhalation on the approach of an attack of angina pectoris, epilepsy, asthma, whooping-cough, laryngismus stridulus, and migraine; in sudden heart-failure, and as an antidote in strychnine-poisoning.

What objection exists to its employment in puerperal convulsions?

It may cause post-partum hemorrhage from relaxation of the uterine vessels.

NITRO-GLYCERIN (GLONOIN).

What is Nitro-Glycerin?

An oily liquid, produced by the action of Nitric and Sulphuric Acids on Glycerin.

For what is it used medicinally?

In spasmodic affections, such as epilepsy, whooping-cough, asthma, angina pectoris, sea-sickness, and reflex vomiting. It has also been recommended in anæmia and Bright's disease.

What is the dose?

Gr. $\frac{1}{200}$.

How is it best administered?

In the form of an alcoholic solution, or in the form of chocolate lozenges containing $\frac{1}{100}$ grain each (British Pharmacopœia).

What effects follow its ingestion?

Symptoms similar to those caused by Nitrite of Amyl,—fullness of the head, headache, vertigo, rapidity of the pulse, and cardiac failure.

POTASSII NITRIS.

For what is Nitrite of Potassium used?

In cases of angina pectoris.

What is the dose?

Gr. iii–v.

What effects follow its administration?

Symptoms similar to those of Nitrite of Amyl, but of greater duration.

LOBELIA (INDIAN TOBACCO).

What part of Lobelia is officinal?

The leaves and tops of the Lobelia Inflata.

On what do its virtues depend?

On a yellowish liquid alkaloid,—Lobelina.

What preparations are officinal?

Acetum Lobeliæ, ...	♏xx–xxx.
Tinctura Lobeliæ, ...	♏x–xxx.
Extractum Lobeliæ Fluidum, . .	♏i–v.

What effect has Lobelia on the system?

It acts as an antispasmodic and expectorant in small doses, and a depressant emetic and poison in large doses.

What are the symptoms of lobelia-poisoning?

Vomiting, purging, with intense prostration, followed by collapse and death.

What cases are most fatal?

Where the drug fails to vomit and purge.

To what is death due?

To paralysis of respiration.

What is the antidote?

Tannic Acid, Opium, alcoholic stimulation, and external heat.

What are the therapeutic uses of Lobelina?

As an antispasmodic expectorant in asthma, whooping-cough, and spasmodic croup; in habitual constipation, and as an injection in strangulation of the bowels and fæcal impactions.

ADMINISTRATION.

Asthma.

℞	Tinct. lobeliæ, ...	fʒj.
	Ammonii bromidi, ...	ʒiij.
	Ammonii iodidi, ...	ʒij.
	Syrup. tolutani, ...	fʒij.
M.	Sig.: A teaspoonful every three hours.	

℞ Ammonii bromidi, ... ℥ij.
Ammonii chloridi, ... ℥iss.
Tinct. lobeliæ, ... ♏xij.
Spts. ætheris comp., ... f℥j.
Syrup. acaciæ, . . . q. s. ad f℥iv.
M. Sig.: A dessertspoonful in water every two hours.

GELSEMIUM (YELLOW JASMINE).

What is Gelsemium?

The rhizome and rootlets of the Gelsemium Sempervirens.

What preparations are officinal?

Extractum Gelsemii Fluidum, . . . ♏ii-x.
Tinctura Gelsemii, ... ♏v-xx.

What symptoms follow the ingestion of Gelsemium?

Giddiness and frontal headache, with disturbance of vision; the pupil is dilated and fixed; the eyelid droops, and squint may develop from paralysis of the external rectus muscle; the body temperature falls; the skin is cold and moist; the pulse feeble and thready, and the respirations labored. On attempting to walk the gait is staggering; articulation is imperfect, and the jaw drops; muscular weakness is very marked, and death follows from paralysis of respiration. Consciousness is generally preserved to the last.

To what is the muscular paralysis due?

To paralysis of the motor centres in the cord.

To what is the dilatation of the pupil due?

To paralysis of the terminal filaments of the oculomotor nerve.

For what is Gelsemium used in medicine?

As an antispasmodic in asthma, whooping-cough, spasmodic laryngitis; in neuralgias of ovarian and

trigeminal origin, and in inflammation of the membranes of the brain. It has also been recommended in pleurisy and pneumonia.

TABACUM (TOBACCO).

On what do the properties of Tobacco depend?

On a colorless, volatile, transparent alkaloid,—Nicotina.

What effect has Tobacco on the system?

It acts as a depressing emetic, lowering the arterial tension by depression of the heart, causing profuse sweating, spinal convulsions, increasing the pulse rate from paralysis of the terminal pneumogastric nerves, and causing death from arrest of respiration. It causes tetanic contraction of the intestines.

For what is Tobacco used therapeutically?

Solely in tetanus and strychnine-poisoning, in the form of a wine; dose, ♏v–f℥j. Its employment in the form of an enema in intestinal impaction is a dangerous expedient.

CONIUM (HEMLOCK).

What is Conium?

The full-grown fruit of the Conium Maculatum, picked while green.

What preparations are officinal?

Abstractum Conii, ...	gr. ss.
Extractum Conii Alcoholicum, . . .	gr. ij.
Extractum Conii Fluidum, . . .	♏ij.
Tinctura Conii (15 per cent.), . . .	♏x.

What is the strength of the abstract?

Each grain represents two grains of the crude drug.

What is the general effect of Conium on the system?

It causes paralysis of motion without loss of consciousness.

What symptoms follow the administration of Conium?

Giddiness, disordered vision, great muscular weakness, and an indisposition to move. The pulse is at first diminished, then increased in frequency; sensation is preserved, and the heart may continue to beat after respiration has ceased.

To what is conium-paralysis due?

To paralysis of the ends of the motor nerves.

To what are the convulsions due?

To stimulation of the cerebrum.

To what is the dilatation of the pupil due?

To oculomotor paralysis.

What antidotes should be given in conium-poisoning?

Emetics, Tannic Acid, external heat, and artificial respiration, supplemented by Atropina.

For what is Conium used in medicine?

As a *motor depressant* in chorea, acute mania, delirium tremens, and tetanus; as an *antispasmodic* in asthma and whooping-cough. It has also been recommended in pleurisy and pneumonia.

ADMINISTRATION.

Hypodermic.

℞ Coninæ bromhydratis, ... gr. viij.
Aquæ chloroformi, ... f℥j.
M. Sig.: One minim contains gr. $\frac{1}{60}$.

Delirium.

℞ Ext. conii fluidi, ... f℥iij.
Chloralis, ... ℥vj.
Ext. hyoscyami, ... f℥iv.
Mucilaginis acaciæ, ... f℥ij.
Aquæ menth. viridis, . . . ad f℥ij.
M. Sig.: A teaspoonful in water after meals.

ALTERATIVES.

What do you understand by Alteratives?

Drugs which, in some unexplainable manner, bring about the resolution of morbid products and exert a favorable influence over the various nutritive processes of the body.

Which are the principal Alteratives?

Mercury, Arsenic, Colchicum, Iodine, Sarsaparilla, etc.

HYDRARGYRUM (MERCURY, OR QUICKSILVER).

What preparations of Mercury are officinal?

Calomel and Corrosive Sublimate; Gray Powder; Blue Mass and Blue Ointment; the Yellow and Red Oxides; the Red and Green Iodides and their four respective ointments; the Sulphide and Subsulphate; a Solution and Ointment of the Nitrate; the Cyanide; Ammoniated Mercury and its Ointment; Mercurial Plaster and Oleate.

What is Calomel?

Mild Chloride of Mercury, Hydrargyri Chloridum *Mite* (Hg_2Cl_2), so called to distinguish it from the corrosive chloride, Hydrargyri Chloridum *Corrosivum* (Corrosive Sublimate), $HgCl_2$.

Into what officinal preparations does it enter?

The compound pills of Antimony and the compound cathartic pills.

What are the therapeutic uses of Calomel?

As an efficient *purgative* in biliousness and hepatic torpor, in doses of from one to five grains; in small doses, gr. $\frac{1}{20}$, it diminishes *glandular enlargements* and acts as an *antiphlogistic* in acute inflammation of serous

membranes. It relieves congestion in dysentery and Asiatic cholera; it has also been used as a specific in the early treatment of typhus and typhoid fever.

For what is Corrosive Sublimate used?

Externally as a germicide parasiticide in skin diseases and antiseptic dressing in the strength of one part to 2000 of water. *Internally* it is a specific in croup and diphtheria and in the treatment of syphilis.

In what doses is it given?

Gr. $\frac{1}{100}$–$\frac{1}{10}$.

What effects follow the ingestion of Mercury in large doses?

The breath becomes fetid, the tongue swollen, the gums spongy and sore, the parotid and submaxillary glands are enlarged, and excessive salivation is produced; the teeth may be loosened and fall out, the soft portions of the mouth be ulcerated, and the jaw-bone necrosed. Emaciation takes place rapidly, and the extremities may be covered with ulcers.

What are the symptoms of poisoning by Corrosive Sublimate?

It acts as a violent irritant, causing gastric pain; vomiting of mucus, bile, and blood; suppression of urine, and severe purging, followed by the ordinary symptoms of collapse.

What is the composition of Gray Powder?

Mercury, 38 parts; Sugar of Milk, 12; Chalk, 50; with Alcohol and Ether to make a uniform gray powder.

What is the dose?

Gr. ss–x.

For what is it used?

Chiefly in the diarrhœa and dysentery of children, to remove offending material from the intestines, and for subduing the enlargements of the parotid and sublingual glands to which children are subject.

What are the ingredients of Blue Mass?

Mercury, 33 parts; Liquorice, 5; Althæa, 25; Glycerin, 2; and Mel Rosæ, 34 parts.

How much Mercury is there in each grain of Blue Mass?

One-third of a grain.

For what are the Green and Red Iodides of Mercury used?

In the treatment of tertiary syphilis.

What is the difference in their chemical composition?

The Red Iodide or *Biniodide* is represented by the formula HgI_2 and is much more active than the Green or *Protiodide* of Mercury Hg_2I_2.

What are their respective doses?

The Green Iodide may be given in doses of gr. $\frac{1}{10}$–$\frac{1}{4}$; the Red Iodide, however, should not be given in doses exceeding those of Corrosive Sublimate, gr. $\frac{1}{100}$–$\frac{1}{50}$.

For what are the Red and Yellow Oxides used?

As stimulant applications to ulcers, chancres, etc., either in the form of dusting powder or of their respective ointments. Diluted with Lard or Vaseline, they are much used in conjunctivitis, sore eyelids, eczema of the auditory canal, and in chronic skin diseases.

What is White Precipitate?

Mercur-Ammonium Chloride (NH_2HgCl).

For what is Ammoniated Mercury used?

Solely for the preparation of the Unguentum Hydrargyri Ammoniati (10 per cent.).

For what is White Precipitate Ointment used?

In various skin and parasitic diseases, such as pediculosis, tinea circinata, tinea favosa, chloasma, echthyma, and eczema.

What is Turpeth Mineral?

Yellow Subsulphate of Mercury.

For what is it used?

As an *alterative*, in doses of gr. $\frac{1}{16}$–$\frac{1}{4}$, and as an *emetic* in croup, in doses of gr. ij. It is rarely used, however, nowadays.

What is Black Wash?

A local application, prepared by adding gr. xxx of *Calomel* to f℥x of Lime-water.

How is Yellow Wash made?

By the addition of gr. xviij of *Corrosive Sublimate* to f℥x of Lime-water.

ADMINISTRATION.

Dyspepsia.

℞ Hydrargyri chloridi mitis, . . . gr. ss.
Sodii bicarbonatis, ... gr. xx.
Pulveris aromatici, ... ℥j.
M. ft. pulv. No. X.
Sig.: One powder every two hours.

Syphilis.

℞ Massæ hydrargyri, ... gr. xxiv.
Ferri sulphatis exsiccati, . . . xij.
Ext. opii aquosi, ... gr. ½.
M. ft. pil. No. XII.
Sig.: One three times a day.

℞ Hydrargyri chloridi corrosivi, . . gr. viij.
Potassii iodidi, ... ℥viij.
Syrupi sarsaparillæ comp., . . . f℥viij.
M. Sig.: A teaspoonful three times a day.

Scabies.

℞ Hydrarg. chlorid. corrosivi, ... gr. iv.
Alcoholis, ... f℥vj.
Ammonii chloridi, ... ʒss.
Aquæ rosæ, ... ad f℥vj.
M. Sig.: Lotion.

Syphilitic Nose Lesions.

℞ Hydrarg. chlorid. mitis,
Lycopodii, ... āā ʒij.
M. ft. pulv.
Sig.: Use as snuff three times a day.

℞ Hydrarg. iodidi rubri, ... gr. ij.
Ammonii carbonatis, ... gr. xx.
Potassii iodidi, ... ʒiij.
Tinct. gent. comp., ... ad f℥iv.
M. Sig.: A teaspoonful in water after each meal.

Squamous Syphilides.

℞ Hydrarg. chloridi corrosivi, ... gr. iv.
Tinct. benzoini, ... f℥ss.
Aquæ cologniensis, ... f℥j.
Aquæ rosæ, ... f℥ivss.
M. Sig.: Apply locally for twenty minutes.

Palmar Syphilis.

℞ Unguenti hydrargyri, ... f℥ss.
Emplastri plumbi, ... ℥ij.
Olei cadini, ... ʒij.
M. S.: Spread on linen and apply to palms

Syphilitic Ulcers.

℞ Hydrarg. chlorid. *corrosiv.*, ... gr xv.
Acid. carbolic., ... ♏xxx.
Aquæ, ... q. s. ad f℥iv.
M. S.: Apply daily on cotton.

Conjunctivitis.

℞ Hydrarg. oxid. rubri, ... gr. x.
Atropinæ sulph., ... gr. j.
Vaselini, ... ℥j.
M. S.: Apply locally.

Acne.

℞ Hydrarg. chlorid. *corrosiv.*, ... gr. xx.
Glycerini, ... f℥ss.
Spts. vini rectificati, ... f℥vij.
Spts. rosmarini, ... f℥iv.
M. S.: Apply as directed.

Pityriasis of Scalp.

℞ Hydrarg. iod. virid., ... gr. v.
Adipis, ... ℥j.
M. ft. unguentum.
S.: Apply locally.

Chloasma.

℞ Hydrarg. chlorid. *corrosiv.*, ... gr. iv.
Acid. nitric. *dil.*,
Acid. hydrocyanic. *dil.*, ... āā f℥j.
Glycerini, ... f℥ij.
Aquæ, ... ad f℥viij.
M. S.: Lotion. Apply as directed.

ARSENIUM (ARSENIC).

What preparations of Arsenic are officinal?

Acidum Arseniosum, ... gr. $\frac{1}{50}$–$\frac{1}{10}$.
Liquor Acidi Arsenīosi ($\frac{1}{100}$), . . . ♏ii–x.
Liquor Potassii Arsenitis (gr. iv–f℥j), . ♏ii–x.
Sodii Arsenias, ... gr. $\frac{1}{24}$–$\frac{1}{12}$.
Liquor Sodii Arseniatis, ... ♏ii–xv.
Arsenii Iodidum, ... gr. $\frac{1}{20}$–$\frac{1}{8}$.
Liquor Arsenii et Hydrargyri Iodidi (Donovan's solution, 1 per cent.), . ♏ii–x.

What are the symptoms of acute arsenic-poisoning?

Burning pains in the epigastrium, followed by violent vomiting and purging. The matters vomited are mixed with flakes of mucus, and tinged with blood. The stools resemble the rice-water discharges of cholera. The urine is suppressed or bloody, the pulse feeble-running and thready. The breathing is labored and

oppressed. Cramps and convulsions ensue, and the patient passes into a state of collapse, with cold breath, icy extremities, pinched features, followed by complete exhaustion and death.

What anomalous forms may acute arsenical poisoning assume?

The symptoms may be purely nervous, and the patient suddenly pass into a state of profound coma resembling the last stages of opium-poisoning, unpreceded by any symptoms of gastro-intestinal irritation. An apparent remission may occur in the symptoms on the second day, but after a time abdominal cramps come on, the body becomes icy cold, the belly swollen, convulsions ensue, and death occurs in from two to six days. Between the second and fifth day an eruption of varied character often appears.

What is the antidote to Arsenic?

Freshly precipitated Sesquioxide of Iron.

For what is Arsenic administered internally?

In dyspepsia, gastric catarrh and gastralgia, gastric ulcer and cancer; in chronic diarrhœa and dysentery; in chlorosis and anæmia, acute coryza, and hay fever; in the form of cigarettes for asthma, emphysema, and chronic bronchitis; shortness of breath, neuralgia, and hemicrania; paralysis agitans and chorea; in skin diseases of long standing; in the chronic treatment of malaria, and in cancer.

For what is Arsenic used externally?

As an escharotic in the form of a paste to destroy cancerous growths; as a hypodermic injection in local chorea, and as an application to destroy the sensibility of carious teeth.

ADMINISTRATION.

Chronic Malaria.

℞ Acid. arseniosi, ... gr. j.
Mass. ferri carb., ... ʒj.
M. ft. pil. No. XXX.
S.: One pill three times a day.

Depilatory.

℞ Yellow sulphide of arsenic, ... gr. xx.
Quicklime, ... ℥ss.
Starch, ... ʒij.

Charta Arsenicalis Composita.

℞ Belladonnæ foliorum, ... gr. xcvj.
Hyoscyami foliorum,
Stramonii foliorum, ... gr. xlviij.
Extract. opii, ... gr. iv.
Tabaci, ... gr. lxxx.
Aquæ, ... Oj.
M. ft. Solution.
Adde—
Potassii nitratis, ... gr. clx.
Potassii arsenitis, ... gr. cccxx.
S.: Saturate bibulous paper and smoke in the form of cigarettes.

Chorea.

℞ Liq. acid. arseniosi, ... fʒij.
Tinct. ferri chlorid., ... fʒj.
Syrupi limonis, ... fʒss.
Syrupi,
Aquæ, ... āā q. s. ad fʒiv.
M. S.: Half a teaspoonful three times a day.

℞ Liq. potassii arsenitis, ... fʒiss.
Tinct. opii deodorat., ... fʒv.
Syrupi zingiberis, ... fʒj.
Aquæ cinnamomi, ... ad fʒiv.
M. S.: A teaspoonful three times a day.

℞ Liquor potass. arsenitis, ... fʒj.
Potassii citratis, ... ʒij.
Ferri et ammonii citratis, ... ʒj.
Tinct. nucis vomicæ, ... fʒij.
Tinct. cinchonæ comp., ... ad fʒiv.
M. S.: Teaspoonful in water after meals.

Chronic Eczema.

℞ Liq. sodii arsenitis, ... f℥j.
Vitellum ovi,
Olei morrhuæ, ... f℥ij.
Syrupi, ... f℥ij.
Aquæ, ... f℥iv.
M. S.: Half a teaspoonful three times a day.

IODUM (IODINE).

What is Iodine?

A non-metallic element obtained from the ashes of sea-weed.

What are its physical properties?

It occurs in bluish-black rhombic scales, having a semi-metallic lustre, an acrid taste, and evolving an odor similar to that of Chlorine.

What preparations are officinal?

Tinctura Iodi (8 per cent.); dose, . . ♏i–v.
Liquor Iodi Compositus (Lugol's solution, —iodine 5 parts, iodide of potassium 10, distilled water 85).
Unguentum Iodi.
Amyl Iodatum (iodized starch,—iodine 5, starch 95); dose, ... ℥i–℥j.

What symptoms follow the ingestion of Iodine?

Headache, giddiness, a metallic taste in the mouth, vomiting and purging, abdominal pain, convulsions, and collapse; the pulse is small and running; the urine scanty and dark brown in color.

What symptoms are indicated by the term Iodism?

They may be catarrhal, nervous, or cachectic. The *catarrhal* symptoms resemble those of an ordinary cold in the head, accompanied by a rise in temperature, headache, sore throat, hoarseness, and dryness of the fauces. The *nervous* symptoms include tinnitus aurium,

convulsive movements, palpitation of the heart, and impairment of intellect. The *cachectic* symptoms are those of rapid emaciation, with atrophy of the mammæ or testes, followed by insomnia, hysteria, melancholia, and general mental decay.

How is Iodine administered internally?

Rarely in the form of the tincture. The compound solution should be used, or the Iodide of Amyl.

What are the *internal* uses of Iodine?

As an alterative in scrofula, chronic enlargement of the joints, and in exophthalmic goitre. Compound solution of Iodine is the German specific for typhoid. In the form of a vapor Iodine is an excellent inhalation in coryza, catarrh, hay asthma, and chronic bronchitis.

What are the *external* uses of Iodine?

As a counter-irritant, alterative, and resolvent application in acute affections of the pharynx and larynx, inflammatory swellings, glandular enlargements, and as an injection in hydrocele, empyema, hydrothorax, and in ovarian and other forms of cystic degeneration.

ADMINISTRATION.

Typhoid.

℞ Tinct. iodi, ... f℥ij.
Acid. carbolic., ... f℥ij.
M. S.: Ten minims every four hours.

Hay Asthma.

℞ Tinct. iodi, ... f℥j.
Acid. carbolic., ... ♏x.
Aquæ destillatæ, ... f℥iv.
M. S.: Apply to nasal cavity.

Iodized Lotion.

℞ Iodi, ... ℥j.
Potassii iodidi, ... ℥ij.
Glycerini, ... f℥viij.
M. S.: Saturate cotton and dry carefully.

Bronchitis.

℞ Tinct. iodi, ... fʒij.
Acid. carbolic., ... fʒj.
M. S.: Drop ten minims on a wet sponge placed in a bottle, standing in hot water, and inhale the vapor.

Uterine Hypertrophy.

℞ Iodi,
Potass. bromid., ... āā gr. xx.
Tinct. iodi, ... fʒj.
Aquæ destillatæ, ... ad fʒss.
M. S.: Inject ℥xxx into cervix.

THE IODIDES.

What salts of Iodine are officinal?

Potassii Iodidum, ... gr. v–ʒj.
Sodii Iodidum, ... gr. ii–xx.
Ammonii Iodidum, ... gr. ii–x.

What is the action of the Iodides on the system?

They act as alteratives, promoting the absorption of morbid products, reducing glandular enlargements and inflammatory swellings, and causing the elimination of metallic poisons.

In what diseases are the Iodides indicated?

In subacute rheumatism and chronic gout, and in the intervals between attacks of summer catarrh and hay asthma. In tertiary syphilis it is a specific in its various manifestations; in chronic pleurisy and pericarditis, and for the elimination of metals from the system, —especially Lead, Silver, and Mercury.

ADMINISTRATION.

Syphilis.

℞ Potassii iodidi, ... ʒij.
Ammonii carb., ... ʒss.
Tinct. cinchonæ comp., ... fʒss.
Glycerin., ... fʒj.
Syrup. aurantii cort., ... ʒiss.
M. S.: A teaspoonful well diluted after each meal.

Lobar Pneumonia.

℞ Ammonii iodidi, ... gr. xl.
Spts. ammon. aromatic., ... f℥ij.
Elixir simplicis, ... f℥j.
Aquæ, ... q. s. ad f℥viij.
M. S.: One ounce three times a day.

Catarrhal Pneumonia.

℞ Sodii iodidi, ... ℥iss.
Morphinæ sulph., ... gr. ss.
Elixir simplicis, ... f℥ij.
M. S.: Teaspoonful three times a day.

Pleurisy.

℞ Potassii iodidi, ... ℥j.
Ammonii chloridi, ... ℥iss.
Mist. glycyr. comp., ... ℥vj.
M. S.: A tablespoonful four times a day.

Meningitis.

℞ Potassii iodidi, ... ℥ss.
Tinct. gentian. comp.,
Syrup. sarsap. comp., ... āā f℥j.
M. S.: A teaspoonful three times a day.

Lupus.

℞ Potassii iodidi, ... gr. lxxv.
Sodii chloridi, ... ℥ss.
Aquæ destillatæ, ... f℥viiiss.
M. S.: Tablespoonful before meals.

℞ Iodi,
Potassii iodidi, ... āā ℥ss.
Glycerin., ... f℥j.
M. S.: Apply locally.

IODOFORMUM.

What are the physical properties of Iodoform?

It occurs in small, hexagonal, yellow crystals, soluble in Ether and Chloroform, and having a penetrating, characteristic odor, and a sweetish, iodinic taste.

What are its therapeutic uses?

As an antiseptic and sedative application in the form of dusting powder or ointment to wounds, ulcers, chancres, and surgical dressings, and as a saturated solution in Ether in cases of acute tonsillitis and chronic sore throat, and in the form of suppositories for hæmorrhoids. Internally it has been given in syphilitic rheumatism, chronic gastric catarrh, chronic dysentery, and diabetes.

What dangers attend its use?

Applied too freely, it may be absorbed and give rise to symptoms of iodine-poisoning.

What is the dose for internal administration?

Gr. i–v.

What are the symptoms?

Similar to those of meningitis,—high fever, restlessness, active delirium, rapid pulse,—followed by collapse and death.

ADMINISTRATION.

Hæmorrhoids.

℞ Iodoformi, ... ʒj.
Balsam. peruv., ... ʒij.
Magnes. calcin., ... ʒj.
Olei theobromæ,
Ceræ albæ, ... ää ʒiss.
M. ft. suppositoria No. XII.
S.: Use as directed.

Ulcers.

℞ Iodoformi, ... ʒij.
Mucilaginis acaciæ, ... ℥xv.
Olei menth. pip., ... ℥ij.
Glycerin., ... ℥xx.
M. S.: Apply locally.

ÆTHER HYDRIODICUS.

What are the physical properties of Ethyl Iodide?

It is a colorless, non-inflammable liquid, having a powerful odor and pungent taste.

How is it administered?

A few drops are placed on a handkerchief and inhaled, or placed in a vial and the vapor inhaled when the warmth of the hand causes it to rise.

In what affections is it used?

Principally in spasmodic affections of the bronchopulmonary membranes, and as a means of inducing iodism rapidly in syphilitic affections of the brain

OLEUM MORRHUÆ.

What is the source of Cod-Liver Oil?

The livers of the Gadus Morrhua and other species of Gadus.

What is its physiological action?

It tends to cause the formation of fat, improves nutrition, and acts as an alterative and general systemic tonic.

In what diseases is it used?

Principally in scrofulosis, phthisis, diseases of strumous origin, and all chronic conditions characterized by wasting.

How is it best administered?

In the form of an emulsion with Tincture of Quillaia, gum arabic, yelk of egg, etc.; in beer, or by inunction on the soft portions of the body in cases where its assimilation by the stomach is impossible.

What is the dose?

From a teaspoonful to an ounce; where the stomach is irritable and the oil nauseates, as little as one drop at a time should be the initial dose, and this gradually increased by the addition of consecutive drops until a full therapeutic dose is tolerated.

What objections are there to its employment?

Its disagreeable taste and its tendency to nauseate.

ADMINISTRATION.

℞ Olei morrhuæ, ... fℨiv.
Glyceriti vitelli, ... ℨix.
Spiritus ammoniæ aromatic., . . . fℨj.
Vini xerici, ... fℨij.
Acidi phosphorici *diluti*, ... fℨss.
Spiritus amygdal. amar., . . . fℨij.
M. ft. emulsio.

℞ Olei morrhuæ, ... fℨss.
Mucilaginis acaciæ, ... fℨij.
Sacchari, ... ℨij.
Tincturæ lavandulæ comp., . . . ♏xx.
Aquæ, ... fℨss.
M. ft. emulsio.
Sig.: A teaspoonful for children.

ACIDUM PHOSPHORICUM.

How is Phosphoric Acid prepared?

By the action of Sulphuric Acid on bone-ash.

What is the strength of Acidum Phosphoricum Dilutum?

It contains 20 per cent. of the Acid.

What are its therapeutic properties?

As a tonic and alterative in strumous affections.

What is the dose?

♏x–xxx, well diluted.

ADMINISTRATION.

Nervous Exhaustion.

℞ Acid. phosph. *dilut.*, ... fℨj.
Elixir calisayæ, ... fℨvj.
Elixir ammonii valerian., . . . fℨij.
Glycerini, ... fℨiij.
Vini xerici, ... q. s. ad Oj.
M. Sig.: A tablespoonful three times a day.

℞ Acidi phosphorici *diluti*, ... ℥x.
Tincturæ lupulini, ... ℥xx.
M. Sig.: A dessertspoonful in water every hour before food.

℞ Syrupi hypophosphitum cum ferro, . f℥vj.
Sig.: A dessertspoonful three times a day.

CALCII PHOSPHAS.

In what form is Phosphate of Calcium used in medicine?

As the precipitated Phosphate of Calcium, the Syrup of the Lactophosphate of Calcium, and Syrupus Phosphatum Compositus (Parrish's Chemical Food,—not officinal).

How is precipitated Phosphate of Calcium prepared?

By precipitating a solution of bone-ash in Hydrochloric Acid with Ammonia.

What is the dose of precipitated Phosphate of Calcium?

Gr. x–xx.

What is the composition of Parrish's Chemical Food?

Each teaspoonful contains two and a half grains of Phosphate of Iron and one grain of Phosphate of Calcium.

In what diseases is Calcium Phosphate indicated?

In chronic phthisis, scrofulosis, rachitis, and osteomalacia, and in cases of delayed union after fracture owing to a scarcity of lime-salts in the blood.

COLCHICUM (MEADOW SAFFRON).

What part of Colchicum is officinal?

The thickened, swollen end of the stem of the Colchicum Autumnale, a small plant grown in Europe.

What is the appearance of Colchicum-seeds?

They are small, hard, round, dark bodies, about one-twelfth of an inch thick, similar to but larger than black mustard-seeds, and having a hot, acrid, bitter taste.

What is the active principle of Colchicum?

An alkaloid,—Colchicina.

What preparations of Colchicum are officinal?

Extractum Colchici Radicis, . . .	gr. ss–ij.
Extractum Colchici Radicis Fluidum, .	℥ ii–x.
Extractum Colchici Seminis Fluidum, .	℥ i–v.
Vinum Colchici Seminis (15 per cent.), .	℥ x–xxx.
Vinum Colchici Radicis (40 per cent.), .	℥ v–xv.
Tinctura Colchici Seminis (20 per cent.),	℥ x–xxx.

What is the physiological action of Colchicum?

It is a diuretic, diaphoretic, purgative, and cardiac depressant.

What effect have large doses of Colchicum on the human system?

They cause violent gastro-enteritis, with purging and vomiting, followed by convulsions and collapse; consciousness being preserved to the last.

To what is death due?

To its irritant action on the alimentary canal.

What effect has Colchicum on the urine?

In moderate doses it increases the flow of urine and the amount of urea. Large doses cause its suppression.

For what is Colchicum principally employed?

As a specific in gout and rheumatism.

When is it most potent?

When it acts on the kidneys and skin.

How is this effect brought about?

By the conjoint administration of Opium to prevent its purging.

What is the antidote in colchicum-poisoning?

Tannic Acid, Opium, and albuminous drinks.

ADMINISTRATION.

℞ Vini colchici radicis, ... f℥j.
Magnesii sulphatis, ... ℥j.
Magnesiæ optimæ, ... ℥ij.
Aquæ menth. pip., ... f℥x.
M. Sig.: A tablespoonful every hour until it operates.

Gout.

℞ Colchicinæ, ... gr. j.
Ext. colocynth. comp., ... ℥ss.
Quininæ sulph., ... ℥iij.
M. ft. pil. No. LX.
Sig.: One every four hours.

Lallemandt's Gout Specific.

℞ Ext. colchici acet. (B. P.),
Ext. opii aquosi, ... ää gr. xv.
Potassii iodidi, ... ℥iv.
Potassii acetatis, ... ℥ij.
Aquæ destillatæ, ... f℥iiiss.
Vini albi, ... f℥ss.
M. Sig.: Twenty drops three times a day.

Irregular Cardiac Action.

℞ Pulv. colchici seminis, ... gr. xl.
Pulv. digitalis, ... gr. xx.
Sodii bicarb., ... gr. lx.
M. et div. in pil. No. XL.
Sig.: One pill three times a day.

Rheumatism.

℞ Potassii iodidi, ... ℥ij.
Vini colchici seminis,
Syrupi simplicis, ... ää f℥ss.
Aquæ menth. pip., ... f℥v.
M. Sig.: Tablespoonful every four hours.

℞ Vini colchici sem., ... ℥iij.
Spiritus ammon. arom., ... ℥xiij.
M. Sig.: A teaspoonful every three hours till some physiological effect is produced.

SARSAPARILLA.

What is Sarsaparilla?

The root of the Smilax Officinalis, Smilax Medica, and other forms of Smilax.

Whence is it obtained?

Brazil and Honduras.

What is its active principle?

Paraglin; also called Smilacin.

What preparations are officinal?

Extractum Sarsaparillæ Fluidum, . . .	℥ss–j.
Syrupus Sarsaparillæ Compositus, . . .	f℥i–f℥ss.
Extractum Sarsaparillæ Fluidum Compositum,	f℥ss–j.
Decoctum Sarsaparillæ Compositum, . .	f℥i–iv.

For what is Sarsaparilla used in medicine?

Principally as a vehicle for the administration of Bichloride of Mercury and Iodide of Potassium in syphilis and in diseases of scrofulous character.

ADMINISTRATION.

℞ Potassii iodidi, ... ℥ss.
Tinct. gentian. comp.,
Syrupi sarsaparillæ comp., . . . āā f℥j.
M. Sig.: A teaspoonful three times a day.

GUAIAC (LIGNUM VITÆ).

In what forms is Guaiac officinal?

As Guaiaci Lignum and Guaiaci Resina.

What preparations are officinal?

Tinctura Guaiaci (20 per cent.), . . .	♏v–f℥j.
Tinctura Guaiaci Ammoniata.	
Guaiaci Resinæ, ...	gr. v–xxx.

For what is Guaiacum principally used?

As an alterative in chronic syphilis, in subacute and chronic rheumatism, and in tonsillitis.

In what forms is it administered?

The resin may be given in wafers, and the tincture in milk or in an emulsion with mucilage or yelk of egg to prevent the precipitation of its resin and water.

ADMINISTRATION.

Perry Davis' Pain Killer.

℞ Guaiaci resinæ, ... ℥ss.
Tinct. capsici, ... f℥j.
Spts. camphor., ... f℥ij.
Alcohol., ... f℥iij.
Tinct. myrrh, ... q. s.

Rheumatism.

℞ Pulv. resin. guaiac.,
Potassii iodid., ... āā ℥ij.
Tinct. colchici seminis, ... f℥iij.
Aquæ cinnamomi,
Syrupi, ... āā q. s. ad f℥vj.
M. Sig.: A dessertspoonful three times a day.

℞ Tinct. guaiaci æther., ... f℥j.
Tinct. colchici æther., ... f℥vj.
Tinct. cannabis indicæ æther., . . f℥ij.
M. Sig.: Twenty-five drops on sugar every four hours.

MEZEREUM.

What is Mezereum?

The bark of the Daphne Mezereum.

Whence is it obtained?

From Europe and Asia.

How does it occur?

In long, thin bands of a yellowish-brown color, devoid of odor, but having a very acrid taste.

What preparations are officinal?

Mezereum, ... gr. i–x.
Extractum Mezerei.
Extractum Mezerei Fluidum.
Unguentum Mezerei (fld. ext. 25, lard 80, wax 12).

For what is Mezereum used?

The ointment is used as an irritant dressing to indolent ulcers. The drug is too irritant for internal use.

SASSAFRAS.

What is Sassafras?

The bark of the root of the Sassafras Officinalis.

What preparations are officinal?

Oleum Sassafras; dose, ♏i–iv.

For what is it used?

For flavoring mixtures and confectionery and for making the popular nostrum known as Sarsaparilla.

What is Sassafras Medulla?

The pith of the tree.

For what is it used?

For the preparation known as Mucilago Sassafras Medulla (2 to 100).

For what is this used?

As a demulcent drink in acute gastritis and poisoning by irritant substances, and to hold insoluble substances in suspension.

TARAXACUM (DANDELION).

What is Taraxacum?

The root of the Taraxacum Dens-leonis.

What preparations are officinal?

Extractum Taraxaci, ...	gr. v–xxx.
Extractum Taraxaci Fluidum, . . .	ʒi–ʒj.

What are its physiological properties?

It is supposed to be a diuretic, and to act also on the liver.

For what is it used in medicine?

Principally as a hepatic stimulant and as an excipient for making pills.

ADMINISTRATION.

℞ Quininæ sulph., ... ℥iss.
Elixir taraxaci, ... f℥iv.
M. Sig.: A teaspoonful every hour for six hours.

Hepatic Congestion.

℞ Acid. nitrohydrochloric. *dil.*, . . . f℥iij.
Elixir taraxaci comp., . . . ad f℥vj.
M. Sig.: A dessertspoonful before meals.

℞ Ext. taraxaci, ... gr. xxij.
Ext. aloes, ... gr. xxiv.
Ext. colchici radicis,
Pulv. ipecac., ... āā gr. xij.
M. et div. in pil. No. XXIV.
Sig.: Two pills at night.

STILLINGIA (QUEEN'S ROOT).

What is Stillingia?

The root of the Stillingia Sylvatica.

What preparation is officinal?

Extractum Stillingiæ Fluidum, ♏x–f℥j.

What is the physiological action of Stillingia?

In large doses it causes nausea, pain in the stomach, vomiting and purging, the fæces having the so-called bilious color; the urine is also increased in quantity.

For what is Stillingia used therapeutically?

As an *alterative* in syphilitic affections and scrofulous tendencies, and as a *hepatic stimulant* in torpor of the liver, hæmorrhoids, and habitual constipation.

ADMINISTRATION.

Habitual Constipation.

℞ Ext. stillingiæ, ... f℥v.
Tinct. belladon.,
Tinct. nucis vom.,
Tinct. physostigmatis, . . . āā f℥j.
M. Sig.: Twenty drops in water before meals.

Hepatic Torpor

℞ Ext. stillingiæ fluid., ... f℥v.
Tinct. aloes, ... f℥ij.
Tinct. nucis vom., ... f℥j.
M. Sig.: Twenty drops in water three times a day.

XANTHOXYLON (PRICKLY ASH).

What is Xanthoxylon?

The bark of the Xanthoxylon Fraxineum.

On what do its virtues depend?

On a neutral crystallizable principle. Xanthoxylon is identical in character with Berberina.

What preparation is officinal?

Extractum Xanthoxyli Fluidum, ♏x–f℥j.

For what is Xanthoxylon used in medicine?

As a domestic remedy for toothache in the form of an infusion, as a gargle in chronic pharyngitis, and in catarrhal jaundice and in rheumatism.

PREPARATION.

Decoctum Xanthoxyli.

℞ Corticis xanthoxyli, ... ℥j.
Aquæ bullientis, ... Oij.
Boil to one pint.
Sig.: Use as a gargle.

VEGETABLE EMETICS.

What are Emetics?

Drugs used to produce emesis or vomiting.

How do they produce this effect?

Partly by a local action on the walls of the stomach and partly by a centric action.

Into what two classes are Emetics divided?

Into Vegetable and Mineral Emetics.

Which are the principal Vegetable Emetics?

Ipecacuanha, Sanguinaria, Apomorphina, Mustard, and Squill.

IPECACUANHA.

What is Ipecacuanha?

The root of the Cephælis Ipecacuanha, a small shrub growing in Brazil.

How is it found in commerce?

In contorted pieces, two or three lines in thickness, marked with rings of a dull-brown color, odorless, and having an acrid taste.

What is the active principle?

Emetina.

What preparations are officinal?

Extractum Ipecacuanhæ Fluidum, . .	♏i–v.
Syrupus Ipecacuanhæ (5 per cent.), . .	ʒi–ʒss.
Vinum Ipecacuanhæ (7 per cent.), . .	♏i–ʒj.
Trochisci Morphinæ et Ipecacuanhæ, . .	gr. ½.
Pulvis Ipecacuanhæ et Opii, . . .	gr. ii–x.
Tinctura Ipecacuanhæ et Opii, . . .	♏v–xxx.

What is the physiological action of Ipecacuanha?

Applied to the nose, powdered Ipecac causes violent sneezing; on the mucous membrane and denuded epidermis it acts as an irritant, giving rise to intense inflammation, followed by a pustular eruption. *Small doses* cause an increased flow from the salivary glands and the bronchial and gastric mucous membranes, with a slight feeling of nausea. In *large doses* it causes vomiting, without much nausea or prostration. *Toxic doses* of Emetina, the alkaloid, produce nausea and vomiting, diminished circulatory and respiratory action, muscular relaxation, with spinal paralysis, and death from cardiac paralysis and failure of respiration. The lungs, at the *post-mortem*, have been found intensely hyperæmic.

What are the antidotes?

Opium; demulcent drinks.

What is the therapeutic employment of Ipecac?

It is the safest and most efficient emetic, being in small doses free from irritant properties. Its mildness recommends it for use with children. Acute indigestion, bilious headache, migraine, and laryngismus stridulus are often cut short by emesis with Ipecac. It is used as an acute emetic in vomiting of pregnancy and other forms of nervous vomiting; in dysentery, combined with Opium, it is extremely serviceable; as an expectorant it is used in bronchitis, asthma, and other affections of the bronchial mucous membrane; in catarrhal jaundice and hepatic congestion it is a very useful remedy; it has also been used as an antihemorrhagic in post-partum hemorrhage, epistaxis, menorrhagia, etc.

ADMINISTRATION.

Tinctura Ipecacuanhæ et Opii.

℞ Tinct. opii deod., ... 85 parts.
Ext. ipecac. fluid., ... 10 "
Alcohol, ... q. s. ad 100 "
Dose, ♏v–xxx.

Dover's Powder.

℞ Pulv. opii, ... 10 parts.
Pulv. ipecac., ... 10 "
Sacchari lactis, ... 80 "
Dose, gr. ii–xv.

Post-partum Hemorrhage.

℞ Ext. ipecac. fluid., ... fʒij.
Ext. ergot. fluid., ... fʒss.
Ext. digitalis fluid., ... fʒij.
M. Sig.: Thirty minims for a dose.

Dysentery.

℞ Ipecac., ... gr. xij.
Bismuth. subnit., ... ʒj.
Pepsin. sacch., ... ʒss.
M. ft. pulv. No. XII.
Sig.: One in milk every two hours.

℞ Pulv. ipecac., ... ʒss.
Pulv. opii, ... gr. j.
Pulv. aromatic., ... gr. v.
M. ft. pulv. No. I.

Vomiting of Pregnancy.

℞ Pulv. ipecac., ... gr. xv.
Cerii oxalatis, ... gr. xij.
Creasoti, ... gr. xxiv.
M. ft. pil. No. XII.
Sig.: One every hour.

Whooping-Cough.

℞ Ext. aconiti, ... gr. j.
Syrup. ipecac., ... ♏xlv.
Aquæ lauro-cerasi, ... fʒj.
Mucilaginis acaciæ, ... fʒviss.
M. Sig.: A teaspoonful every hour.

Bronchitis.

℞ Ext. ipecac. fluid., ... fʒij.
Tinct. opii deod., ... fʒss.
Tinct. aconiti, ... fʒj.
M. Sig.: Five drops every two hours.

Acute Diarrhœa.

℞ Pulv. ipecac., ... gr. j.
Pulv. rhei, ... gr. iij.
Sodii bicarb., ... gr. vj.
M. ft. pulv. No. XII.
Sig.: One powder every four hours, in a child of two years, till the character of the passage changes.

Enterocolitis.

℞ Pulv. ipecac., ... gr. iij.
Bismuth. subnit., ... ʒj.
Cretæ præp., ... ʒss.
M. ft. pulv. No. XII.
Sig.: One powder after each stool.

Dysentery.

℞ Pulv. ipecac. et opii., ... ℥j.
Bismuth. subnit., ... ℥ij.
M. ft. pulv. No. XII.
Sig.: One every two hours.

SANGUINARIA (BLOOD-ROOT).

What is Sanguinaria?

The rhizome of the Sanguinaria Canadensis.

In what form is it found in commerce?

In long, reddish-brown pieces, having an orange-red hue internally, and exuding, when fresh, a reddish juice.

What is its active principle?

Sanguinarina; also Puccin and Porphyroxin.

What preparations are officinal?

Tinctura Sanguinariæ, ... ♏v–f℥ss.
Acetum Sanguinariæ, ... ♏v–f℥ss.
Extractum Sanguinariæ Fluidum, . ♏ii–xx.

What is the action of Sanguinaria on the system?

It acts as a depressing emetic, causing nausea and prostration, with feebleness of the circulation.

For what is it used in medicine?

Principally as an *expectorant* in acute bronchitis and in chronic nasal catarrh, an *emmenagogue* in functional amenorrhœa, and, in the form of a powder, as an *escharotic* to destroy nasal growths.

ADMINISTRATION.

Impotence.

℞ Sanguinariæ, ... gr ij.
Ext. ergotæ, ... gr. xx.
M. ft. pil. No. XX.
Sig.: One three times a day.

℞ Tinct. sanguinariæ, ... f℥iij.
Ext. stillingiæ fluid., ... f℥v.
M. Sig.: Fifteen drops in water three times a day.

Amenorrhœa of Anæmia.

℞ Tinct. sanguinariæ, ... f℥ij.
Tinct. aloes, ... f℥ss.
Tinct. nucis vom., ... f℥ij.
M. Sig.: Twenty drops three times a day.

℞ Sanguinariæ, ... gr. ij.
Extract. aloes, ... gr. x.
Ferri reducti, ... gr. xx.
M. ft. pil. No. XX.
Sig.: One three times a day.

Acute Bronchitis.

℞ Tinct. sanguinariæ, ... f℥j.
Tinct. lobeliæ, ... f℥j.
Vini ipecac., ... f℥ij.
Syrup. tolutan., ... f℥ss.
M. Sig.: A teaspoonful every three hours.

℞ Ammonii chloridi, ... ℥iss.
Morphinæ sulph., ... gr. ij.
Tinct. sanguinariæ,
Syrup. ipecac., ... āā f℥ss.
Mist. glycyrrhizæ comp.,
Aquæ, ... āā f℥iss.
M. Sig.: Teaspoonful for a dose.

APOMORPHINÆ HYDROCHLORAS.

How is Hydrochlorate of Apomorphine prepared?

By the action of Hydrochloric Acid on Morphine.

What are its physical appearances?

It is a snow-white powder, turning green on exposure to moisture.

How does it differ chemically from Morphina?

In being soluble in cold water.

For what is Apomorphine used in medicine?

As a very efficient and *prompt emetic*, producing but

little nausea, and as an *expectorant* in acute and capillary bronchitis.

In what doses is it given?

As an *emetic*, from gr. $\frac{1}{10}$ to $\frac{1}{4}$, hypodermically. In old and debilitated subjects $\frac{1}{15}$ gr. has proved fatal.

What are the advantages of Apomorphine as an emetic?

It acts promptly, and, being used hypodermically, is of especial service when the stomach is inflamed.

SINAPIS (MUSTARD).

What is Mustard?

The seed of the Sinapis Alba.

How is it employed to produce emesis?

A dessertspoonful is given in a pint of water, and the dose repeated in ten minutes if it is necessary.

What caution should be observed in its employment?

Owing to its irritant action on the stomach, its administration should not be persisted in if the second dose fails to act.

MINERAL EMETICS.

What Mineral Emetics are in use?

Tartar Emetic, Sulphate of Zinc, and Sulphate of Copper.

TARTAR EMETIC.

How does Tartar Emetic produce emesis?

By its action on the central nervous system.

What is the character of its action?

It acts slowly, but produces violent and persistent vomiting, and is rarely employed for this purpose.

ZINCI SULPHAS (SULPHATE OF ZINC).

To what class of Emetics does Zinc Sulphate belong?

To the mechanical emetics.

What is the emetic dose?

Gr. xxx, combined with an equal quantity of Ipecacuanha.

What advantages does it possess?

It is prompt in its action and unirritating, and is to be preferred to all others in narcotic poisoning.

CUPRI SULPHAS.

How does Sulphate of Copper differ from Sulphate of Zinc as an Emetic?

It is more irritating to the stomach, and may cause gastroenteritis.

What is the emetic dose?

Gr. v–x.

CATHARTICS.

What are Cathartics?

Drugs which produce catharsis or purging.

How is purgation produced?

By an increase in the peristaltic action of the bowel, and by increasing the alimentary secretion.

Into what classes are Cathartics divided?

Laxatives, Purgatives, Hydragogues, and Drastics.

LAXATIVES.

What are Laxatives?

Drugs which simply unload the bowels without producing purgation.

What are the principal Laxatives?

Magnesia, Sulphur, Tamarinds, Manna, and Cassia Fistula.

MAGNESIUM.

What is Magnesia?

Oxide of Magnesium.

What varieties of Magnesia are there?

Two,—the light and the heavy.

How do they differ?

Simply in density, being chemically identical.

On what does their laxative action depend?

On the presence of acid in the alimentary canal.

What is the laxative dose of Carbonate of Magnesium?

For an adult, ʒss–fʒss.

What is the corresponding dose of Magnesia?

Gr. x–ʒj.

SULPHUR.

What is sulphur?

A non-metallic element occurring as a pale-yellow solid.

In what forms is it officinal?

As Sulphur Sublimatum, Sulphur Precipitatum, and Sulphur Lotum.

What is Sublimed Sulphur?

A fine, yellowish powder, obtained by the sublimation and condensation of the crude variety.

What is Sulphur Lotum?

Sublimed Sulphur digested with Aqua Ammoniæ, and thoroughly washed and sieved.

What effect is thus produced?

The Sulphur is freed from contamination with Arsenic, Sulphurous or Sulphuric Acid.

How is precipitated Sulphur made?

By boiling the sublimed variety with slaked lime

and water. The Sulphide and Hyposulphide of Lime thus formed are dissolved with Hydrochloric Acid, and the precipitated Sulphur is washed and dried.

What effect has Sulphur on the system?

In sufficient doses it acts as a laxative, giving rise to soft, mush-like, highly-offensive stools.

What preparations are officinal?

Calx Sulphurata, ... gr. $\frac{1}{10}$–$\frac{1}{4}$.
Potassa Sulphurata, ... gr. ii–x.
Sulphuris Iodidum (for ointments).
Unguentum Sulphuris (sublimed sulphur, 30 per cent).
Unguentum Sulphuris Alkalinum.

What preparation is used as a laxative?

Sulphur Lotum.

How is Sulphur excreted?

In the fæces, urine, sweat, breath, and milk.

In what form is it eliminated?

Partly as Sulphur, and partly in the form of Sulphides and Sulphuretted Hydrogen.

How are the Sulphides excreted?

In the fæces, in the form of Sulphates.

What is their physiological action?

In large doses they are irritant to the alimentary tract, increasing intestinal secretion and peristaltic action. Repeated small doses have the power of arresting suppurative processes.

What are the therapeutic uses of sulphur?

As a *laxative* in hæmorrhoids, fissure of the anus, and after operations on the rectum; as an *alterative* in muscular rheumatism, sciatica, and lumbago, and as a *parasiticide* in the itch and other skin diseases.

What is the dose of Sulphur?

As a laxative, ʒi–iij; as an alterative, gr. x–xx.

ADMINISTRATION.

Acne.

℞ Sulphuris, ... ʒj.
Glycerini, ... fʒj.
Aquæ rosæ, ... fʒvij.
M. Sig.: Lotion.

Scabies.

℞ Sulphuris sublimati, ... ʒj.
Balsami peruviani, ... ʒss.
Adipis, ... ʒj.
M. ft. unguentum.

℞ Sulphuris sublimati,
Olei cadini, ... āā ʒij.
Cretæ præparatæ, ... ʒiiss.
Saponis viridis,
Adipis, ... āā ʒj.

Laxative.

℞ Sulphuris,
Pulv. aromatic.,
Confectionis rosæ,
M. Sig.: One-third at bed-time.

POTASSA SULPHURATA (HEPAR SULPHURIS).

How is Potassa Sulphurata prepared?

By heating together 1 part of Sublimed Sulphur and 2 parts of Carbonate of Potassium.

What are its physical properties?

It occurs in liver-brown fragments, having a disagreeable odor, an unpleasant taste, and alkaline reaction.

What are its physiological properties?

Taken internally in large doses it acts as an irritant, producing gastroenteritis. In very small doses it is supposed to abort suppurative processes.

What are its therapeutic uses?

It is only used externally in the form of warm

Sulphur *baths* (℥ij to 30 gallons of water) in chronic rheumatism and skin diseases, and as an ointment (gr. xxx–℥j) in various skin affections.

CALX SULPHURATA (SULPHIDE OF CALCIUM).

How is Calx Sulphurata prepared?

By heating together 100 parts of powdered Lime and 90 parts of precipitated Sulphur.

What are its physical appearances?

It is a whitish powder of an alkaline reaction and having a disagreeable taste.

For what is it used?

In small and repeated doses it is an extremely efficient remedy in boils, scrofulous glandular enlargements, and other suppurative processes.

What is the dose?

Gr. $\frac{1}{20}$.

How is it administered?

In the form of a trituration with Sugar of Milk.

ADMINISTRATION.

Boils.

℞ Calcis sulphuratæ, ... gr. iij.
Sacchari lactis, ... q. s.
M. ft. trit. Div. in chart. No. XXX.
Sig.: One powder every two hours.

TAMARINDUS (TAMARIND).

What is Tamarind?

The preserved pulp of the Tamarindus Indica, a large tree growing in the East and West Indies.

What is the appearance of the fruit?

It occurs as a more or less curved pod, having an extremely brittle brown shell. The medicinal part of

the fruit is the soft acid pulp which surrounds the seeds.

Into what officinal preparation does it enter?

Into Confection of Senna to the extent of 10 per cent.

For what is Tamarind used in medicine?

As a refrigerant and acidulous drink for convalescents and as a laxative in habitual constipation.

MANNA.

What is Manna?

A saccharine exudation of the Fraxinus Ornus.

How does it occur?

In three forms,—*Flake Manna*, obtained in July and August; *Manna in Sorts*, obtained in September; and *Fat Manna*, exuded in the wet weather of October and November.

Which is the best variety?

The Flake Manna.

What is its active principle?

A crystalline saccharine substance,—Mannite.

For what is Manna used in medicine?

As a mild laxative addition to other remedies, such as Senna, Rhubarb, and Magnesia. Used by itself it is apt to cause griping and colic.

What is the dose?

℥ss–℥ij for an adult.

CASSIA FISTULA (PURGING CASSIA).

What is Cassia Fistula?

The pulpy portion of the fruit of the Cassia Fistula, a tree growing in Egypt and India.

For what is it used?

In doses of half an ounce it is an agreeable addition

to other laxatives, but is apt to cause griping if administered by itself.

PURGES.

OLEUM RICINI (CASTOR OIL).

What is the source of Castor Oil?

The seeds of the Ricinis Communis.

In what is it soluble?

In Ether and Alcohol.

For what is it used in medicine?

As a soothing purgative in irritated conditions of the bowels.

How soon does it act?

In from four to six hours.

For what are the leaves used?

As an application to the breast, in the form of a poultice, they are supposed to possess galactogogue properties.

How is Castor Oil best administered?

In capsules, or in an envelope of cream formed by smearing the sides of a glass with cream, pouring in the oil and covering it over with another layer of cream. Given with an equal quantity of Glycerin and a few drops of Essence of Gaultheria, Bitter Almonds, or Cinnamon, it loses a great deal of its nauseous taste.

What is the dose?

ʒss–j.

ADMINISTRATION.

℞ Olei ricini,
Glycerini, ... āā ʒj.
Tinct. aurantii, ... ♏xx.
Tinct. senegæ, ... ♏v.
Aquæ cinnamomi, ... ad ʒss.
M. ft. emulsio.
S.: Take all at once.

℞ Olei ricini,
Glycerini, ... āā f℥ss.
Olei cinnamomi, ... ♏ℓ.
M. Sig.: Take all at once.

Enema.

℞ Olei ricini, ... f℥iss.
Olei terebinth., ... f℥ss.
Ovum,
Aquæ fervidæ, ... f℥xiv.

HYDRARGYRUM (MERCURY).

What preparations of Mercury are used as purgatives?

Calomel and Blue Mass.

Which of these is the more active?

Calomel. Blue Mass sometimes fails entirely.

What kind of stools do these preparations produce?

Green, liquid stools, followed by brown passages containing large quantities of bile.

What are the indications for the employment of mercurial purges?

The condition popularly known as biliousness, catarrhal jaundice, dysentery, and hepatic congestion.

ADMINISTRATION.

Hepatic Congestion.

℞ Pil. hydrargyri,
Pulv. aloes soc., ... āā gr. iv.
Pulv. rhei,
Ext. hyoscyami, ... āā gr. vj.
M. ft. pil. No. VI.
Sig.: Two pills every other night.

Biliousness.

℞ Mass hydrarg.,
Ext. colocynth comp., . . . āā gr. iij.
M. ft. pil. No. II.
Sig.: Take at once and follow with saline cathartic.

RHEUM (RHUBARB).

What is Rhubarb?

The root of the Rheum Officinale.

On what does its activity depend?

Chrysophanic Acid. It also contains Tannic Acid, and to this fact owes its griping qualities.

What preparations are officinal?

Extractum Rhei,	gr. x–xv.
Extractum Rhei Fluidum,	f℥ss–f℥ij.
Tinctura Rhei,	f℥i–f℥ss.
Tinctura Rhei Aromatica,	f℥i–iij.
Tinctura Rhei Dulcis,	f℥ss–ij.
Syrupus Rhei,	f℥ii–f℥ss.
Syrupus Rhei Aromaticus,	f℥ii–f℥ss.
Vinum Rhei,	f℥i–f℥ss.
Pulvis Rhei Compositus,	℥j.
Pilulæ Rhei,	i–iij.
Pilulæ Rhei Compositæ,	ii–iv.
Mistura Rhei et Sodæ,	f℥ii–f℥ij.

What is the physiological action of Rhubarb?

In *small* doses it is a stomachic tonic and intestinal astringent, owing to the dominant action of its Tannic Acid. In *large* doses it is a purgative, producing copious yellow stools in about six hours. This laxative action is apt to be succeeded by its astringent action, and constipation result.

What effect has it on the urine?

It turns it yellow.

How do you distinguish this yellow Rhubarb urine from that of jaundice?

On the addition of an alkali Rhubarb urine turns a purplish hue.

In what is Rhubarb used in medicine?

As a habitual laxative in *chronic constipation* small pieces of the root may be chewed from time to time.

In *diarrhœa* it unloads the bowels of offending material. In the form of the aromatic syrup it is especially useful in the summer complaints of children.

ADMINISTRATION.

Pulvis Rhei Compositus.

℞ Rhubarb, ... 25 parts.
Magnesia, ... 65 "
Sugar, ... 10 "
M. Sig.: Dose, one teaspoonful.

Tinctura Rhei Aromatica.

℞ Rhubarb, ... 8 parts.
Licorice, ... 4 "
Anise, ... 4 "
Cardamom, ... 1 part.
Diluted alcohol, . . q. s. ad 1000 parts.
M. Sig.: Dose, from one to three teaspoonfuls.

℞ Syrup. rhei, ... f℥j.
Tinct. myrrh, ... f℥j.
Syrup. zingib., ... f℥ss.
Syrupi, ... q. s. ad f℥iij.
M. Sig : One teaspoonful three times a day.

Colic.

℞ Pulv. rhei,
Ext. gentianæ, ... ää ℥j.
M. ft. pil. No. XX.
Sig.: One or two three times a day.

Aphthæ.

℞ Pulv. rhei comp.,
Sacch. lactis, ... q. s.
M. ft. trit. Div. in pulv. No. XII.
Sig.: One three times a day.

CASCARA SAGRADA (SACRED BARK).

(*Unofficinal.*)

What is Cascara Sagrada?

The bark of the Rhamnus Purshiana.

Where is it obtained?

California.

On what does its activity depend?

Principally on the presence of Chrysophanic Acid.

In what form is it administered?

Extractum Cascaræ Fluidum, ♏x–f ℥ij.

What are its properties?

It acts as a stomachic tonic, increasing the secretion of the gastro-intestinal tract, and thus producing catharsis.

In what affections is it used?

In dyspepsia, catarrhal jaundice, habitual constipation, hæmorrhoids, and affections of the pelvic viscera.

JUGLANS (BUTTERNUT).

What is Juglans?

The inner bark of the root of the Juglans Cinerea.

On what does its activity depend?

On an orange-yellow crystalline substance, Juglandic Acid, or Nucin.

What is its physiological action?

It is a mild cathartic, operating without the production of pain or griping.

What preparation is officinal?

Extractum Juglandis, gr. v–xx.

ALOE (ALOES).

What is Aloe?

The inspissated juice of the Aloe Socotrina.

What other varieties are there?

Barbados Aloes and Cape Aloes.

Which is the best variety?

The Socotrine Aloes.

For what is Barbados Aloes used?

In veterinary surgery only.

What preparations are officinal?

Aloe Purificata, ... gr. i–v.
Extractum Aloes Aquosum, ... gr. ss–v.
Tinctura Aloes, ... f℥ss–ij.
Tinctura Aloes et Myrrhæ, . . . f℥ss–ij.
Vinum Aloes, ... f℥i–f℥ss.
Pilulæ Aloes (soap and aloes, āā gr. ij).
Pilulæ Aloes et Asafœtidæ (aā gr. 1½).
Pilulæ Aloes et Ferri (gr. j).
Pilulæ Aloes et Mastiches (Lady Webster).
Pilulæ Aloes et Myrrhæ.

What is the physiological action of Aloes?

Aloes is a stomachic tonic and hepatic stimulant and emmenagogue. In large doses it is a slowly-acting purgative, its effects not being felt until twelve hours after its administration.

For what is Aloes used in medicine?

In the *constipation* of debilitated subjects, in *hæmorrhoids*, and in *atonic amenorrhœa*.

What is Aloe Purificata?

Aloes dissolved in Alcohol and strained to get rid of small pieces of fibre or other extraneous matter with which it is often contaminated.

What contra-indications are there to the use of Aloes?

Plethoric constipation and pregnancy.

ADMINISTRATION.

Constipation.

℞ Aloes socotrinæ, ... gr. xij.
Extracti belladonnæ, ... gr. iij.
Saponis, ... q. s.
M. ft. pil. No. XXIV.
Sig.: One or two as required.

℞ Aloes, ... gr. vj.
Pulv. rhei, ... gr. xxiv.
Ext. belladonnæ, ... gr. j.
M. ft. pil. XII.
Sig.: One or two pills as required.

Anæmia.

℞ Ext. aloes aquosi, ... ℥ij.
Ferri sulph. exsiccati, . . . ʒij.
Asafœtidæ, ... ℥ss.
M. ft. pil. No. C.
Sig.: One after each meal.

SENNA.

What is Senna?

The leaflets of the Cassia Centifolia (Alexandria Senna), and of the Cassia Elongata (Indian Senna).

What preparations are officinal?

Extractum Sennæ Fluidum, . . . fʒj.
Syrupus Sennæ, ... fʒss–ij.
Confectio Sennæ, ... fʒi–ij.
Infusum Sennæ Compositum, . . fʒi–iij.

What is the physiological action of Senna?

It is a powerful cathartic, producing in from four to six hours copious yellow stools, attended with much pain and griping, but not followed by constipation.

On what does its activity depend?

On Cathartic Acid and Chrysophanic Acid, and other undetermined principles.

For what is Senna used?

Owing to its disagreeable taste and the griping it causes it is not much used. The confection is used in habitual constipation and the constipation of pregnancy. When used, Senna should be administered with other drugs and aromatics.

ADMINISTRATION.

℞ Infusi sennæ, ... f℥vj.
Infusi gentianæ comp., . . . ad f℥iij.
M. Sig.: For a child two years old a teaspoonful three times a day.

EUONYMUS (WAHOO).

What is Wahoo?

The bark of the Euonymus Atropurpurea.

How does it occur?

In ash-colored quills, having an acrid, sweetish taste.

What preparations are used?

Extractum Euonymi, ... gr. i–v.
Extractum Euonymi Fluidum, . . f℥ii–f℥ss.
Euonymin (an unofficinal resin), . . gr. ss–v.

What is its physiological action?

It is a slowly-acting purgative and cholagogue.

In what conditions is it employed?

In habitual constipation, dyspepsia, and hepatic torpor.

ADMINISTRATION.

Hepatic Congestion.

℞ Euonymini, ... gr. xij.
Extract. hyoscyami, ... gr. vj.
M. ft. pil. No. VI.
Sig.: One at bed-time.

SALINE PURGATIVES.

Which are the Saline Purgatives?

The Sulphates of Magnesium and Sodium, Tartrate of Potassium and Sodium, Citrate of Magnesium, and Phosphate of Sodium.

MAGNESIUM.

What preparations of Magnesium are officinal?

Magnesii Sulphas (Epsom Salts). Liquor Magnesii Citratis.
Magnesii Citras Granulatus. Trochisci Magnesii.

What kind of stools does Sulphate of Magnesium produce?

Large, watery passages, with no intestinal irritation.

What is the dose?

Half an ounce to an ounce, well diluted.

How does it produce this effect?

By an osmosis outward from the intestinal vessels.

What is the purgative dose of the granulated Citrate of Magnesium?

One to two tablespoonfuls.

What is the dose of the Liquor Magnesii Citratis?

f ℥iv–vj., repeated if necessary.

SODIUM.

What laxative preparations of Sodium are officinal?

Sodii Sulphas (Glauber's Salt), . . . ℥ss–j.
Sodii Phosphas, ... ʒi–ℨj.

How is Glauber's Salt made?

By the action of Sulphuric Acid on common salt.

For what is it used?

Solely in veterinary medicine, owing to its nauseous taste and severe action.

What is Phosphate of Sodium used for?

Chronic diarrhœa of infants.

POTASSIUM.

What purgative Salts of Potassium are officinal?

Potassii et Sodii Tartras (Rochelle Salts).
Pulvis Effervescens Compositus (Seidlitz Powder).

What is the dose of Rochelle Salts?

Half an ounce to an ounce, well diluted.

What is the composition of Seidlitz Powder?

Tartaric Acid, . gr. xxxv (in white paper).
Bicarbonate of Sodium, gr. xl
Rochelle Salts, . 3ij } (in blue paper).

How is it administered?

The contents of the papers are dissolved in separate glasses and then thrown together into one vessel and drunk while effervescing.

DRASTICS.

What are Drastics?

Vegetable cathartics, which in large doses produce severe gastro-intestinal inflammation.

Which are the principal Drastics?

Jalap, Colocynth, Scammony, Podophyllum, Elaterium, Gamboge, and Croton Oil.

JALAPA (JALAP).

What is Jalap?

The tuberous root of a vine,—the Exogonium Purga.

Where does it grow?

In Mexico.

In what forms is it found?

In the form of young, undivided roots and in transverse pieces of older roots.

What are its active principles?

Two resins,—Jalapin and Convolvulin.

What preparations are officinal?

Abstractum Jalapæ, ... gr. i–v.
Resina Jalapæ, ... gr. ii–v.
Pulvis Jalapæ Compositus, ... gr. x–3j.

What is the physiological action of Jalap?

It is an active cathartic, producing copious watery stools.

How is it administered?

In combination with Calomel or in the form of the Compound Powder of Jalap.

What is the composition of the Compound Powder of Jalap?

Jalap, 35 parts; Bitartrate of Potassium, 65 parts.

For what is it used?

As a purgative hydragogue cathartic in ascites and dropsy, and as a vermifuge in conjunction with other remedies.

ADMINISTRATION.

℞ Resin. jalap.,
Hydrarg. chlorid. mit.,
Ext. hyoscyam., ... āā gr j.
M. ft. pil. No. I.
S.: Take at bed-time.

℞ Resin. jalap., ... gr. viij.
Syrup. rhei aromatic., ... f℥ss.
M. Sig.: A teaspoonful for a dose.

COLOCYNTHIS (BITTER CUCUMBER).

What is Colocynth?

The fruit of the Citrullus Colocynthis which has been deprived of its rind.

Where does it grow?

At the Cape of Good Hope, Japan, Turkey, Syria, and Egypt.

What is its appearance?

It occurs in the form of round gourds, of a pale-yellowish color, about three inches in diameter.

On what does its activity depend?

On a glucoside,—Colocynthin.

What preparations are officinal?

Extractum Colocynthidis, . . . gr. ss–ij.
Extractum Colocynthidis Compositum, . gr. v–xx.

How is Colocynth administered?

Always in combination with milder purgatives, it being too severe in its action to be used alone. It should never be used in dropsy.

ADMINISTRATION.

Lavilles' Anti-Gout Remedy.

℞ Colocynthin,	2½	parts.
Quinine and cinchonin,	5	"
Spanish wine,	800	"
Alcohol,	100	"
Water, q. s. ad	1000	"

Extractum Colocynthidis Compositum.

℞ Extract of colocynth,	16	parts.
Purified aloes,	50	"
Resin of scammony,	14	"
Cardamom,	6	"
Soap,	14	"

M. Sig.: Dose, gr. i–xx.

SCAMMONIUM (SCAMMONY).

What is Scammony?

A resinous exudation from the root of the Convolvulus Scammonia.

How is it found?

In irregular greenish-black cakes, having a peculiar cheese-like odor and an acrid taste.

What preparation is officinal?

Resina Scammonii, gr. iii–viij.

What is its active principle?

A resin resembling that of Jalap.

How much resin must officinal Scammony contain?

Seventy-five per cent.

Into what officinal preparation does it enter?

Compound Cathartic Pills.

ADMINISTRATION.

Compound Cathartic Pills.

℞ Abstract jalap, ... gr. j.
Calomel, ... gr. j.
Gamboge, ... gr. ¼.
Colocynth, ... gr. ⅓.

PODOPHYLLUM (MAY APPLE).

What is Podophyllum?

The rhizome and rootlets of the Podophyllum Peltatum.

In what form is it found?

In brown, wrinkled pieces, about the thickness of a quill, to which are attached numerous rootlets.

On what does its activity depend?

On two resins.

What preparations are officinal?

Abstractum Podophylli, ... gr. ¼–j.
Extractum Podophylli, ... gr. v–x.
Extractum Podophylli Fluidum, . . ℥i–xxx.
Resina Podophylli, ... gr. ⅛–j.

How long does Podophyllum take to purge?

From six to ten hours.

What is the character of the stools it produces?

Copious and watery bilious passages, accompanied with nausea and griping.

What are its therapeutic uses?

As a cathartic in constipation with deficient hepatic secretion; in congestion of the portal circulation, ascites, and malarial jaundice.

What should always be administered with Podophyllum?

Hyoscyamus, Belladonna, or Cannabis Indica to prevent its griping.

ADMINISTRATION.

℞ Resinæ podophylli, ... gr. vj.
Ext. belladonnæ,
Ext. physostigmatis, . . . āā gr. iij.
M. ft. pil. No. XII.
Sig.: One pill each night.

LEPTANDRA (CULVER'S ROOT).

What is Leptandra?

The rhizome and rootlets of Leptandra Virginica.

What preparations are officinal?

Extractum Leptandræ, ... gr. ii–x.
Extractum Leptandræ Fluidum, . . ℥v–f℥j.

What is the action of Leptandra on the system?

It acts mildly, causing liquid, bilious stools.

IRIS (BLUE FLAG).

What is Iris?

The rhizome and rootlets of the Iris Versicolor.

What preparations are officinal?

Extractum Iridis, ... gr. i–v
Extractum Iridis Fluidum, ... ℥v–℥j.
Iridin (unofficinal), ... gr. i–v.

What are its properties?

It is an active purgative and emetic.

What are its therapeutic uses?

As a cathartic in hepatic torpor and obstruction of the bile-ducts. Minim drops of a tincture have been recommended in right supraorbital headache.

ELATERIUM (SQUIRTING CUCUMBER).

What is Elaterium?

A substance deposited by the juice of the Momordica Elaterium.

On what does its activity depend?

On a neutral principle,—Elaterinum.

What are the physical properties of Elaterinum?

It occurs in small, shining, colorless crystals, devoid of odor, and having an acrid taste and neutral reaction.

What is the dose of Elaterinum?

Gr. $\frac{1}{20}$–$\frac{1}{8}$.

What preparation is officinal?

Triturate of Elaterium (10 per cent.), gr. ss–ij.

What is the physiological effect of Elaterinum?

It acts as a powerful hydragogue cathartic, producing large watery stools. In large doses it causes severe gastro-intestinal irritation, followed by prostration, convulsions, and death. Two and two-fifths grains of the extract have proved fatal (H. C. Wood).

In what class of cases is Elaterinum indicated?

In ascites and dropsy, in uræmia and where there is a sudden rush of blood to the head.

CAMBOGIA (GAMBOGIA).

What is Gamboge?

A gum-resin obtained from the leaves of the Garcinia Morella.

In what form is it found in the market?

Where the juice has been caught in bamboo pipes, it occurs in cylindrical casts, known as *Pipe Gamboge*, or as *Gamboge in Sorts*, having a deep, red-orange color externally, and yellowish within.

What is its physiological action?

It acts as a violent drastic cathartic, producing intense irritation of the intestinal canal and diuresis.

For what is Gamboge used?

To give additional force to other purgatives, and in ıe preparation of the Compound Cathartic Pills.

What is a dose of Gamboge?

Gr. ii–v.

OLEUM TIGLII (CROTON OIL).

What is the source of Croton Oil?

The seeds of the Croton Tiglium, a small tree grow-ing in India.

What is its physiological action?

Locally it is an intense irritant, giving rise to an eruption on the skin at its point of application. Taken internally, it produces violent purging and gastro-intestinal inflammation.

What are its therapeutic uses?

As a hydragogue cathartic in mania, delirium tremens, and the constipation of lead-poisoning, apoplexy, and paralysis.

What is the dose?

One drop placed on the tongue, or given on a lump of sugar, in pill form, or in emulsion.

ADMINISTRATION.

℞ Olei tiglii, ... gtt. iij.
Ext. colocynth. comp., ... gr. xx.
Ext. belladonnæ, ... gr. iij.
M. ft. pil. No. VI.
Sig.: One pill for a dose.

℞ Aloes socot.,
Scammonii,
Pil. hydrargyri, ... āā ʒj.
Ol. tiglii, ... ♏xx.
Ol. carui, ... ♏xc.
Elixiris proprietatis, ... q. s.
M. ft. pil. No. CCCC.
Sig.: One at bed-time.

DIURETICS.

What are Diuretics?

Agents which increase the flow of urine.

Into what classes are they divided?

Into three,—Hydragogue Diuretics, Refrigerant Diuretics, and Stimulating Diuretics.

What properties do the Refrigerant Diuretics possess?

Sedative properties.

HYDRAGOGUE DIURETICS.

What are the principal Hydragogue Diuretics?

Squill, Digitalis, Broom, and Sweet Spirits of Nitre.

SCILLA (SQUILL).

What is Scilla?

The bulb of the Scilla Maritima.

What is the appearance of Squill?

It occurs in white, horny flakes, of a leathery consistency when moistened, and having an acrid, disagreeable taste.

What effect has Squill in large doses on the system?

It causes vomiting and purging, with convulsions, prostration, and death. The urine is scanty and bloody, or there may be entire suppression.

What effects follow small doses?

It acts as an expectorant and diuretic, increasing the liquid portion of the urine.

What is the therapeutic employment of Squill?

As a *diuretic* to remove dropsical effusions in cardiac dropsy, and as an *expectorant* in bronchial catarrh, provided there is no acute inflammatory process present.

In inflammation of the kidneys, owing to its irritant properties, its employment is inadmissible.

What preparations are officinal?

Acetum Scillæ (f℥iv–Oij),	♏xx–f℥j.
Syrupus Scillæ,	f℥ss–j.
Syrupus Scillæ Compositus,	♏v–f℥j.
Extractum Scillæ Fluidum,	♏i–v.
Tinctura Scillæ,	♏v–f℥ss.

ADMINISTRATION.

Bronchitis.

℞ Aceti scillæ, f℥ss.
Ext. ipecac. fluid., f℥ss.
Tinct. opii deod., f℥j.
Syrup tolu, ℥x.
M. Sig.: A teaspoonful every three hours.

℞ Morph. sulph., gr. ss.
Scillæ,
Ipecac., āā gr. vj.
Ext. hyoscyam., gr. iij.
M. ft. pil. No. XII.
Sig.: One every four hours.

Cardiac Dropsy.

℞ Aceti scillæ, f℥ss.
Infus. digitalis, f℥iiiss.
M. Sig.: A tablespoonful three times a day.

Syrupus Scillæ Compositus.

℞ Squill,	120 parts.
Senega,	120 "
Tartar emetic,	3 "
Sugar,	1200 "
Calcium phosphate,	9 "
Diluted alcohol-water, q. s. ad	2000 "

What other name has Compound Syrup of Squill?

It is frequently called Cox's Hive Syrup.

What proportion of Tartar Emetic does it contain?

Each fluidounce contains gr. $\frac{3}{4}$ of Tartar Emetic.

DIGITALIS (FOXGLOVE).

What effect has Digitalis on the urine?

It produces free diuresis without affecting the solid constituents of the urine.

In what way is its effect brought about?

By restoring a healthy circulation to the renal arteries.

In what form is Digitalis administered for its diuretic action?

It may be combined with Squill in cardiac dropsy, or with Bitartrate of Potassium in renal dropsy. A flannel cloth may be wrung out with an infusion and placed over the abdomen for a few hours, when its diuretic effect will be exhibited.

SCOPARIUS (BROOM).

What is Broom?

The dried tops of the Cytisus Scoparius.

In what form does it occur?

In thin, flexible, pentangular twigs, with small, downy leaves, having a peculiar odor when crushed, and an unpleasant, bitter taste.

In what form is Broom administered as a diuretic?

In the form of a decoction, made by boiling half an ounce of the tops in a pint of water down to half a pint. Dose, f ℥j every three hours.

SPIRITUS ÆTHERIS NITROSI (SWEET SPIRITS OF NITRE).

What is the physiological action of Sweet Spirits of Nitre?

It relaxes the renal and cutaneous circulatory system, causing diuresis and diaphoresis.

How may its diuretic properties be best obtained?

By keeping the surface cool, and preventing its diaphoretic action as much as possible.

REFRIGERANT DIURETICS.

POTASSIUM.

What is the action of the Potash Salts on the urine?

They greatly increase the uric acid and urea, and all the solid constituents of the urine, as well as the liquid portion.

What is their general effect on the system?

They act as irritants and poisons to the higher forms of tissue, hastening the process of oxidation in the system, lowering the temperature and pulse, and arresting the heart in diastole by a direct action on its muscle.

What diuretic preparations of Potassium are officinal?

Potassii Carbonas, ...	gr. ii–xx.
Potassii Bicarbonas, ...	gr. v–xxx.
Potassii Citras, ...	gr. x–xxx.
Potassii Acetas, ...	gr. v–℥j.
Potassii Bitartras, ...	gr. xx–℥ss.
Potassii Sulphas, ...	℥i–ij.
Potassii Nitras, ...	gr. v–xx.
Liquor Potassæ, ...	♏v–f℥ss.
Liquor Potassii Citratis, . . .	f℥ss–j.
Mistura Potassii Citratis, . . .	f℥ss–j.

What effects follow the prolonged use of the Potash Salts?

The blood becomes poor, and a general dyscrasia ensues.

What therapeutic difference is there between the Carbonate and Bicarbonate of Potash?

The Carbonate is more irritant.

In what form is the Citrate of Potash best administered?

In the form of a "neutral mixture" and "effervescing draught."

What is Neutral Mixture?

Bicarbonate of Potash added in sufficient quantity to Lemon-juice to neutralize it.

What is Effervescing Draught?

Equal parts of Lemon-juice and water are added to a solution of one drachm of Bicarbonate of Potash in three ounces of water, and the two drunk together in effervescence.

What is the therapeutic employment of the Vegetable Salts of Potash?

As depuratives for the elimination of morbid products from the system in rheumatism, gout, and hepatic torpor; as *diuretics* and *antacids* when there is acidity of the urine, and as *solvents* for uric acid calculi.

What other name has Bitartrate of Potash?

Cream of Tartar.

What special properties does it possess?

It acts as a hydragogue cathartic.

How is it generally administered?

In infusion of Juniper-berries.

POTASSII NITRAS (NITRE).

What is the physiological action of Nitre?

Locally it acts as a violent irritant on raw surfaces and mucous membranes, producing internally violent gastroenteritis.

In what is it employed?

It has been used in acute catarrhs, rheumatism, and as a diuretic; but its irritant properties should not be lost sight of.

POTASSII CHLORAS.

What is the physiological action of Chlorate of Potash?

Locally it is an irritant; taken internally it is a gastro-intestinal irritant, producing a preliminary copious flow of urine, followed by suppression.

How is it eliminated?

In its original form in all the secretions of the body.

For what is Chlorate of Potash employed in medicine?

As a gargle for sore throat, in catarrhal and aphthous inflammation of the mouth; internally it is especially useful in nursing sore mouth, tonsillitis, and diphtheria.

ADMINISTRATION.

Scarlet Fever.

℞ Acidi borici, ... ℥ss.
Potassii chloratis, ... ℥ij.
Tinct. ferri chlorid., ... fʒij.
Glycerin.,
Syrup., ... āā fʒj.
Aquæ, ... fʒij.
M. Sig.: Tablespoonful every two hours.

Pleuritis.

℞ Potassii acetatis, ... ℥j.
Infus. digitalis, ... ad fʒiv.
M. Sig.: Teaspoonful every three hours.

Tonsillitis.

℞ Potassii chloratis, ... gr. lxxx.
Tinct. ferri chloridi, ... gtt. clx.
Acid. hydrochlor. *dil.*, ... fʒj.
Syrup. zingib., ... fʒij.
Aquæ, ... q. s. ad fʒiv.
M. Sig.: Teaspoonful in water every three hours.

Sore Throat.

℞ Potass. chlorat., ... ℥ss.
Rhois glabræ, ... ℥j.
Aquæ bullientis, ... Oj.
Allow to simmer in an earthen vessel to three-quarters of a pint.
Sig.: Strain and use as a gargle.

LITHIUM.

What Salts of Lithium are officinal?

Lithii Carbonas, ...	gr. ii–xv.
Lithii Citras, ...	gr. v–xxx.
Lithii Bromidum, ...	gr. v–xxx.
Lithii Benzoas, ...	gr. v–xxx.
Lithii Salicylas, ...	gr. v–xxx.

For what is Carbonate of Lithium used in Pharmacy?

For the preparation of the Citrate.

What is the physiological action of Salts of Lithium?

They are strongly alkaline and act as alkalies and diuretics on the urine, neutralizing its acidity and combining with uric acid to form the soluble Urate of Lithium.

For what are the Lithium Salts used in medicine?

Principally in the treatment of the gouty and lithiæmic diathesis, in rheumatism and cystic disorders.

What is the *rationale* of the combination of Lithium and Benzoic Acid?

To form the soluble Urate of Lithium and to substitute the conversion of the nitrogenous portion of the urine into Uric Acid, by that of Benzoic Acid into Hippuric Acid.

What percentage of Bromine does Lithii Bromidum contain?

About 90 per cent.

In what disease is it principally used?

Epilepsy.

ADMINISTRATION.

Rheumatic Arthritis.

℞ Lithii bromidi, ... ℥iij.
Syrup. zingiberis, ... ℥ss.
Aquæ, ... f℥iss.
M. Sig.: Teaspoonful three times a day.

BLATTA.

What is Blatta?

The dried bodies of the Blatta Orientalis, or Cockroach.

What is its active principle?

A crystalline substance, called Antihydropin.

What properties does it possess?

It is supposed to be diuretic, and has been employed in dropsy by Russian physicians.

What is the dose?

From gr. v–xxx, three times a day.

STIMULATING DIURETICS.

Which are the Stimulating Diuretics?

Buchu, Pareira Brava, Uva Ursi, Juniper, Turpentine, Copaiba, Cubebs, Cantharides, etc.

BUCHU.

What is Buchu?

The leaves of the Barosma Crenata.

Where does it grow principally?

At the Cape of Good Hope.

What is the appearance of the leaves?

They are about an inch long, with crenated margins and conspicuous oil-glands on their under surfaces.

What effect has Buchu on the kidneys?

It acts as a diuretic, stimulant, and alterative to the renal mucous membrane.

For what is it employed in medicine?

In chronic affections of the genito-urinary tract,—*e.g.*, pyelitis, cystitis, and irritable bladder,—and as a vehicle, in the form of an infusion, for the administration of the saline diuretics.

What preparations are used?

Extractum Buchu Fluidum, . . .	♏x–f℥j.
Infusum Buchu (℥i–Oj), ...	f℥ss–ij.

ADMINISTRATION.

Dysuria.

℞ Ext. belladonnæ fluid., ... f℥ss.
Ext. buchu fluid., ... f℥j.
Spts. ætheris nitrosi, ... f℥ij.
M. Sig.: A teaspoonful in water three times a day.

PAREIRA BRAVA.

What is Pareira?

The root of the Chondodendron Tomentosum.

What preparations are officinal?

Extractum Pareiræ Fluidum, . . .	f℥ss–j.
Infusum Pareiræ (1–17), ...	f℥i–ij.

What are its therapeutic uses?

As a stimulating diuretic in chronic cystitis, irritable bladder, and gonorrhœa.

What is its action on the system?

It acts as a diuretic, laxative, and tonic, increasing peristalsis, and having a soothing effect on the mucous membrane of the bladder.

UVA URSI (BEARBERRY).

What is Bearberry?

The leaves of the Arctostaphylos Uva Ursi.

What is the appearance of the leaves?

They are wedge-shaped, half an inch in length, and

having a smooth, rounded margin, a hay-like odor, and bitter taste.

What are the active principles of Bearberry?

Gallo-Tannic Acid, Urson, Ursin, and Arbuten.

What preparations are officinal?

Extractum Uva Ursi Fluidum, . . .	♏x–f℥j.
Infusum Uva Ursi, ...	f℥i–ij.
Arbutinum, ...	gr. ii–v.

What is the therapeutic employment of Uva Ursi?

As an astringent and stimulant diuretic in chronic pyelitis, cystitis, and uterine hemorrhages, incontinence of urine, dysuria, and strangury.

CHIMAPHILA (PRINCE'S PINE).

What is Pipsissewa?

The dried leaves of the Chimaphila Umbellata.

On what do its virtues depend?

Tannic Acid, Chimaphilin, and bitter extractive.

What is its physiological action?

Pipsissewa is an astringent, tonic, and diuretic.

For what is it used in medicine?

As a diuretic in dropsy and albuminuria and chronic affections of the genito-urinary tract.

What preparations are officinal?

Extractum Chimaphilæ Fluidum, . .	f℥ss–j.
Decoctum Chimaphilæ, ...	f℥i–iij.

JUNIPERUS (JUNIPER).

What are Juniper-berries like?

They are round, bluish bodies, about the size of a pea.

On what does their activity depend?

On Oleum Juniperi.

What preparations are officinal?

Oleum Juniperi,	♏ v–xx.
Spiritus Juniperi,	ʒi–ʒj.
Spiritus Juniperi Compositus,	℥ss–j.
Infusum Juniperi,	ʒss–ij.

Oleum Cadini.

What is the physiological action of the Oil of Juniper-berries?

It acts as a tonic and stimulant to the stomach, kidneys, and genito-urinary tract. In large doses it causes suppression of urine, strangury, and convulsions.

What are its therapeutic uses?

Oleum Juniperi is used to flavor gin and as a stimulant diuretic in chronic conditions of the genito-urinary tract not marked by acute inflammations. The spirit and compound spirit are used as vehicles for other diuretics.

ERIGERON (CANADA FLEABANE).

What preparation of Erigeron is used?

The volatile oil—Oleum Erigerontis—of the Erigeron Canadense.

What is its physiological action?

It resembles Turpentine, but it is less irritant and stimulating.

For what is it used in medicine?

Principally in affections of the genito-urinary passages, and in menorrhagia, intestinal hemorrhage, and gonorrhœa.

What is the dose?

Gtt. v–xx, given on sugar, every three hours.

TEREBINTHINA (TURPENTINE).

In what conditions is Turpentine used as a diuretic?

In chronic pyelitis, chronic cystitis, subacute gon-

orrhœa and gleet, and in urinary incontinence due to debility.

COPAIBA.

What is Copaiba?

An oleoresin obtained from the Copaifera Multijuga Langsdorfii, and other species of Copaifera.

What is its appearance?

It is a yellowish liquid, having a strong, terebinthine odor, and a burning, exceedingly disagreeable taste.

What preparations are officinal?

Massa Copaibæ (copaiba 94, magnesia 6).
Oleum Copaibæ, ... ℥v–fʒss.
Resina Copaibæ, ... gr. i–v.

What is the physiological action of Copaiba?

Applied locally it acts as an irritant, causing itching and the appearance of an eruption. Internally it causes gastro-intestinal irritation, with nausea, diarrhœa, unpleasant eructations, and inflammation of the genito-urinary tract, with scanty urine, albuminuria, and blood-casts.

What are its therapeutic uses?

In the treatment of subacute and chronic gonorrhœa and chronic inflammation of the genito-urinary passages. Its use is contra-indicated in the early inflammatory stage of gonorrhœa. In psoriasis and urticaria it has been used both externally and internally. It is a useful application for frost-bites.

ADMINISTRATION.

Gonorrhœa.

℞ Oleoresinæ cubebæ, ... ʒiv.
Potassii bromidi, ... ʒj.
Olei sassafras, ... ℥x.
Syrup. acaciæ, ... fʒij.
Aquæ, ... ad fʒvj.
M. Sig.: A dessertspoonful three times a day.

Gonorrhœa.

℞ Copaibæ, ... ℥iss.
Pulv. cubebæ, ... ℥iij.
Aluminis, ... ℥ij.
Sacchari albi, ... ℥j.
Magnesiæ, ... ℥iss.
Olei cubebæ,
Olei gaultheriæ, ... āā f℥j.
M. ft. electuarium.
Sig.: A piece the size of a walnut after each meal.

CUBEBA (CUBEBS).

What is Cubebs?

The unripe berries of the Piper Cubeba.

Where does it grow?

In Japan.

On what do its virtues depend?

On an ethereal extract or oleoresin.

What preparations are officinal?

Extractum Cubebæ Fluidum, . ♏ v–xxx.
Tincturæ Cubebæ (10 per cent.), . . ♏ x–f℥iij.
Oleoresina Cubebæ, ... ♏ v–xxx.
Oleum Cubebæ, ... ♏ v–xx.
Trochisci, ... i–ij.

What is the physiological action of Cubebs?

It resembles black pepper, and is an aromatic stomachic and stimulant diuretic in small doses. In large doses it is a gastro-intestinal irritant, producing an eruption similar to that caused by Copaiba. It is eliminated by the bronchial mucous membrane, the skin, and the kidneys.

For what is Cubebs used in medicine?

Principally like Copaiba, with which it is often combined, in the treatment of gonorrhœa and genito-urinary

disorders. In the form of lozenges it is used by public speakers for its tonic effect on the larynx and vocal cords. In the form of a snuff, powdered Cubebs is often used to check the nasal discharge of coryza.

MATICO.

What is Matico?

The leaves of the Piper Angustifolium, a shrub growing in Peru.

On what do its virtues depend?

A resin, a volatile oil, and also a bitter principle,—Maticin.

What preparations are officinal?

Extractum Matico Fluidum, . . .	f℥ss–ij.
Tinctura Matico (10 per cent.), . .	℥ss–ij.

What is the physiological action of Matico?

It is an aromatic tonic and genito-urinary stimulant, similar in its action to Cubebs and Turpentine. The under surface of the leaf, when applied to a bleeding surface, acts as a mechanical styptic.

For what is it employed in medicine?

Principally in internal hemorrhages and gonorrhœa.

CANTHARIDES (SPANISH FLY).

How does Cantharides affect the genito-urinary organs?

It acts as an intense irritant, being the most active of all the stimulating diuretics.

In what conditions is it used?

Only in obstinate gleet when an intensely stimulant action is demanded, and in similar cases of pyelitis and cystitis.

DIAPHORETICS.

What are Diaphoretics?

Medicines which increase the activity of the perspiratory glands.

How do they produce their effects?

By directly stimulating the perspiratory glands, by reducing the activity of the circulation, and by relaxing the skin.

For what are Diaphoretics employed in medicine?

To eliminate noxious material from the system, and to remove serous accumulations.

What subdivisions of Diaphoretics are made?

Nauseating Diaphoretics, Refrigerant Diaphoretics, and Simple Diaphoretics.

Which are the Nauseating Diaphoretics?

Tartar Emetic and Ipecacuanha.

What drugs fall under the heading of Refrigerant Diaphoretics?

The Cardiac Sedatives.

Which are the Simple Diaphoretics?

Jaborandi, Liquor Ammonii Acetatis, Sweet Spirits of Nitre, and various hot infusions.

PILOCARPUS (JABORANDI).

What is Pilocarpus?

The leaves of the Pilocarpus Pennatifolius.

What is its active principle?

Pilocarpin.

What preparations are officinal?

Extractum Pilocarpi Fluidum, . .	♏ v–f℥j.
Pilocarpinæ Hydrochloras, . . .	gr. $\frac{1}{8}$–$\frac{1}{2}$.

What is the physiological action of Pilocarpus?

It causes nausea and vomiting, with profuse salivation and perspiration. The pulse and respiration are quickened, the temperature falls, and the patient is left much exhausted.

How does Jaborandi produce diaphoresis?

By its direct action on the glands themselves.

What effect has Jaborandi on the hair?

Its continued use makes it coarse, and changes its color from light to dark.

How does Jaborandi lower temperature?

By the evaporation of the moisture induced.

What effect has Jaborandi on the heart?

It slows the heart by stimulating its inhibitory ganglia.

What effect has Pilocarpin on the eye?

It causes contraction through a peripheral influence.

For what is Jaborandi employed in medicine?

Principally to remove effusions, to eliminate morbid products from the system, and relieve the kidneys by throwing the work of elimination on the skin instead.

What precautions should be observed in its employment?

It exerts a very depressing effect on the system, and its use is contra-indicated in asthenia and weak heart.

LIQUOR AMMONII ACETATIS (SPIRITS OF MINDERERUS).

How is Spirits of Mindererus prepared?

By saturating dilute Acetic Acid with Carbonate of Ammonium.

Into what officinal preparation does it enter?

Mistura Ferri et Ammonii Acetatis.

What is the dose of Spirits of Mindererus?

f℥i–f℥j.

For what is it employed?

Principally in fever mixtures to produce diaphoresis.

SPIRITUS ÆTHERIS NITROSI (SWEET SPIRITS OF NITRE).

What is the physiological action of Sweet Spirits of Nitre?

It acts as a stimulant diaphoretic, and consequently antipyretic.

What effects follow the ingestion of large doses of Sweet Spirits of Nitre?

Headache, cyanosis of the face and extremities. The pulse is frequent and weak. There is great muscular weakness, and death may occur.

What is the dose?

f℥i–f℥ss.

ALCOHOL.

How does Alcohol act as a diaphoretic?

Only when taken in excess in very warm water.

In what condition can it be used?

To break up a cold, to relieve subacute rheumatism, and in suppressed menstruation.

How is it administered in these cases?

Two or three tablespoonfuls of brandy or whisky are given in hot lemonade on going to bed for the night.

WARBURG'S TINCTURE (TINCTURA PYREXIALIS).

For what is Warburg's Tincture used?

To produce profuse sweating in severe remittent and intermittent fevers.

In what doses is it administered?

In doses of from f℥ss–f℥j, undiluted, after the bowels have been freely opened.

ADMINISTRATION.

Warburg's Tincture.

℞	Aloes socotrinæ,		℔ j.
	Rad. rhei,		
	Sem. angelicæ,		
	Confec. damocrat,	āā	℥iv.
	Rad. helenii,		
	Croci sativi,		
	Sem. fœniculi,		
	Cret. præp.,	āā	℥ij.
	Rad. gentian.,		
	Rad. zedoariæ,		
	Pip. cubeb.,		
	Myrrh. elect.,		
	Camphoræ,		
	Bolet. laricis,	āā	℥j.

Digest with five hundred ounces of proof spirit for twelve hours; express, add ℥x bisulphate of quinine; dissolve with water-bath, cool, and filter.

To what is the efficacy of the above preparation due?

Partly to the Quinine and partly to the aromatics it contains.

EXPECTORANTS.

What are Expectorants?

Remedies which promote the secretion of the bronchial mucous membrane.

In what ways do they act?

By allaying irritation, acting as astringents or as alteratives to the membrane.

What main divisions of Expectorants are there?

Nauseating Expectorants and Stimulating Expectorants.

Which are the Nauseating Expectorants?

Tartar Emetic, Ipecacuanha, and Lobelia.

What preparation of Lobelia is used as an Expectorant?

Tinctura Lobeliæ, ♏xx–xxx.

In what conditions is Ipecacuanha used as an Expectorant?

In the early stages of bronchitis, in the night-cough of phthisis, spasmodic asthma, and hay fever.

What preparations are used?

Generally the Syrup in doses of gtt. xx–f℥j. Trochischi Ipecac., or the Trochisci Ipecac. et Morphinæ.

TARTAR EMETIC.

In what conditions is Tartar Emetic used as an Expectorant?

Where a sudden abortion of an attack of bronchitis is absolutely necessary.

How is it administered?

In doses of gr. $\frac{1}{12}$ every ten minutes until vomiting ensues.

AMMONII CHLORIDUM (MURIATE OF AMMONIA).

What other names has Ammonium Chloride?

Sal Ammoniac and Muriate of Ammonium.

How is it prepared?

By heating Sulphate of Ammonium with Chloride of Sodium.

In what form is it found?

As a white, translucent, saline-tasting salt.

What is the physiological action of Ammonium Chloride?

Locally in a concentrated form it acts as an irritant

to mucous membranes. In long-continued doses it impairs the vitality of the blood, causing hemorrhages and great prostration, impairing the digestion and causing emaciation.

For what is Muriate of Ammonia used therapeutically?

As an expectorant in the second stage of bronchitis, in torpidity of the liver, in gastric and intestinal catarrhs, and in various forms of neuralgia and muscular rheumatism.

What preparations are officinal?

Ammonii Chloridum, ...	gr. v–x.
Trochisci Ammonii Chloridi (each gr. ij).	

SENEGA (SENEKA).

What is Senega?

The root of the Polygola Senega.

Where does it grow?

In the Southern and Middle United States.

What is its appearance?

It occurs in contorted, knotted pieces about four inches in length, marked by a prominent line running their entire length.

What preparations are officinal?

Abstractum Senegæ, ...	gr. v–x.
Extractum Senegæ, ...	♏ x–xx.
Syrupus Senegæ, ...	f℥i–ij.
Syrupus Scillæ Compositus, . . .	♏ v–f℥ss.

What is the physiological action of Senega?

It acts as a stimulating expectorant and local irritant, causing vomiting and purging in large doses, and acting as a general depressant.

For what is Senega used in medicine?

As a *stimulant* in the advanced stages of chronic bronchitis, and, in the form of a decoction, administered for two weeks before the expected period as an emmenagogue in amenorrhœa.

AMMONIACUM (AMMONIAC).

What is Ammoniac?

A gum-resin formed by the exudation of the juice of the Dorema Ammoniacum.

Whence is it obtained?

From Persia.

In what form does it occur?

In small globules of a yellowish color, having a bitterish, acrid taste, and a faint, disagreeable odor.

What preparations are officinal?

Mistura Ammoniaci (4 per cent.), . . f℥ss–j.
Emplastrum Ammoniaci.
Emplastrum Ammoniaci cum Hydrargyro.

For what is it employed?

Internally, in the form of the mixture, in chronic bronchitis and asthma. *Externally* the plasters of Ammoniac are mild counter-irritants and local stimulants for enlarged glands and scrofulous tumors.

BENZOINUM (BENZOIN).

What is Benzoin?

The concrete juice of the Styrax Benzoin.

Where does it grow?

In Peru.

How is this drug obtained?

By making incisions into the tree and allowing the exuding juice to dry.

What are its physical appearances?

It occurs in brownish tears agglutinated together, having a fragrant odor when broken, and an acrid taste.

How is Acidum Benzoicum obtained?

By sublimation of Benzoin.

In what form does it occur?

In white, feathery crystals, having a fragrant odor and peculiar acrid taste.

How is Benzoin Acid eliminated?

In the form of Sulphuric Acid.

Where does this change take place?

In the kidneys.

For what is Benzoin Acid used in medicine?

As a stimulant *expectorant* in chronic bronchial catarrh; as an *acidifier of the urine* in the phosphatic diathesis and in acute gonorrhœa; as an *antizymotic* in diphtheria, erysipelas, and rheumatism; and as an addition to fats and ointments for chapped lips, sore nipples, etc.

ADMINISTRATION.

Uric Acid Gravel.

℞ Sodii carbonatis, ... ℥iss.
Acidi benzoici, ... gr. xl.
Sodii phosphatis, ... ℥iij.
Aquæ ferventis, ... f℥iv.
Solve et adde—
Aquæ cinnamomi, ... f℥½viiss.
Tincturæ hyoscyami, ... f℥ss.
M. Sig.: Two tablespoonfuls three times a day.

Chapped Lips.

℞ Tincturæ benzoini comp., . . . f℥ij.
Glycerin., ... f℥j.
M. Sig.: Apply as directed.

What preparations are officinal?

Acidum Benzoicum, ...	gr. v–xxx.
Ammonii Benzoas, ...	gr. v–xxx.
Sodii Benzoas, ...	gr. v–xxx.
Lithii Benzoas, ...	gr. v–xxx.
Adeps Benzoinatus (2–100).	
Tinctura Benzoini (20 per cent.), . .	f℥ss–j.
Tinctura Benzoini Composita (Friar's Balsam), ...	f℥ss–ij.

For what is Benzoate of Sodium used?

As a substitute for Sodii Salicylas in septic diseases, and as an inhalation in phthisis.

BALSAMUM TOLUTANUM.

What is Balsam of Tolu?

A thick, viscid fluid, obtained from the Myroxylon Toluifera.

Where does it grow?

In Venezuela and New Granada.

In what form is it found in the market?

As a hard, resinous solid, having a fragrant odor and vanilla taste.

What preparations are officinal?

Tinctura Tolutana (10 per cent.), . .	♏x–xxx.
Syrupus Tolutanus (4 per cent.), . .	f℥i–ij.

For what is Tolu used?

Principally to flavor cough syrups.

ALLIUM (GARLIC).

What preparation of Garlic is officinal?

Syrupus Allii (15 per cent.), f℥i–iv.

What is the physiological action of Garlic?

In small doses it is a stimulant to digestion and to the nervous system, and exerts a sedative influence on

the bronchial mucous membrane. Locally applied, Garlic is a rubefacient.

For what is Garlic used as a medicine?

As a stimulating expectorant in bronchitis, lingering colds, and the suffocative catarrh of infants. In the form of a poultice, mixed with flaxseed-meal, pounded Garlic is a useful sedative application to the spine and legs in infantile convulsions.

SCILLA (SQUILL).

What preparations of Squill are used as expectorants?

Syrupus Scillæ, ... f℥ss–j.
Syrupus Scillæ Compositus, . . . ℿx–xx.

PIX (PITCH).

What varieties of Pix are there?

Pix Burgundica, Pix Canadensis, and Pix Liquida.

In what form are the Pitches used as rubefacients?

As Emplastrum Picis Burgundicæ and Emplastrum Picis Canadensis.

What is their composition?

Ninety parts of yellow wax with ten parts of pitch.

PIX BURGUNDICA.

What is Pix Burgundica?

A resinous exudation of the Abies Excelsa, or Norway Spruce.

What preparations are officinal?

Emplastrum Picis Burgundicæ.
Emplastrum Picis cum Cantharide.

What is the composition of Emplastrum Picis cum Cantharide?

Cerate of Cantharides, eight parts; Burgundy Pitch, ninety-two parts.

PIX CANADENSIS.

What is Pix Canadensis?

Canada or Hemlock Pitch, an exudation from the Abies Canadensis.

What preparation is officinal?

Emplastrum Picis Canadensis.

PIX LIQUIDA (TAR).

What is the source of Tar?

The wood of the Pinus Palustris of North and South Carolina.

For what is Tar used in medicine?

As a stimulant expectorant in the later stages of acute and in chronic bronchitis.

What preparations are officinal?

Oleum Picis Liquidæ. Syrupus Picis Liquidæ.
Unguentum Picis Liquidæ.

EMMENAGOGUES.

What are Emmenagogues?

Drugs which are used to bring about or increase the menstrual flow.

How do they effect this?

By acting as tonics where scanty menstruation is due to debility; as depletives where plethora is the cause; or by stimulating the uterine membrane directly.

Into what classes are the Emmenagogues divided?

Tonic Emmenagogues, Purgative Emmenagogues, and Stimulating Emmenagogues.

What are the principal Tonic Emmenagogues?

Iron, Strychnine, and the other remedies which give tone to the system.

Which are the Purgative Emmenagogues?

Aloes, Helleborus Niger, and the drastic purgatives.

Which are Stimulating Emmenagogues?

Savine, Rue, Tansy, Parsley, Cantharides, and Guaiac.

SABINA (SAVINE).

What is Savine?

The dried tops of Juniperus Sabina.

Where does it grow?

In the southern portion of Europe.

On what do its virtues depend?

On a dark-yellow, volatile oil, officinal as Oleum Sabinæ.

What preparations are officinal?

Extractum Sabinæ Fluidum, . .	ℳx–xv.
Ceratum Sabinæ.	
Oleum Sabinæ, ...	ℳi–v.

What is the physiological action of Savine?

Locally applied, the oil is an intense irritant. Small doses exert a stimulant action on the uterus, causing increased cardiac action and menstrual activity. Internally, large amounts cause vomiting and purging and all the symptoms of gastroenteritis. The urine and stools are bloody. Convulsions ensue, followed by collapse and death.

What are the therapeutic uses of Savine?

Externally, in the form of its cerate, Savine is used as a stimulating application to indolent ulcers. In the form of a paste, the powder may be used for the destruction of venereal warts. The *internal* use of Savine is confined to cases of functional dysmenorrhœa and menorrhagia due to atonicity of the uterine tissues. It is an exceedingly irritant and dangerous abortifacient, and is likely to cause death if used with this object.

RUTA (RUE).

What is Rue?

The leaves of the Ruta Graveolens.

On what does its activity depend?

On a volatile oil,—Oleum Rutæ.

What preparation is officinal?

Oleum Rutæ, ♏i–v.

For what is it employed in medicine?

As an emmenagogue in atonic amenorrhœa and menorrhagia.

APIOL (PARSLEY).

What is Apiol?

A neutral liquid principle extracted from the root of the Petroselinum Sativum, or common parsley.

What is the physiological action of Apiol?

It acts as an antiperiodic, emmenagogue, and carminative, producing symptoms closely resembling those of cinchonism.

For what is Apiol used therapeutically?

As an *emmenagogue* in cases of amenorrhœa due to anæmia, and as an *antiperiodic* in malarial neuralgia, where the idiosyncrasies of the patient forbid the employment of Quinine.

When is it administered for its emmenagogue effect?

Three grains, twice a day, may be given for a week previous to the expected period. If the menstrual flow begins, gr. xv may be given in the course of a few hours (H. C. Wood).

CANTHARIDES.

What preparation of Cantharides is used as an emmenagogue?

The tincture, in dose of gtt. iii–v, three times a day.

GUAIACUM.

In what cases is Guaiac used as an emmenagogue?

Where there is a rheumatic element involved in dysmenorrhœa.

In what doses is it given?

In dose of a teaspoonful three times a day.

ADMINISTRATION.

℞ Tinct. ferri chlorid., ... ʒiij.
Tinct. cantharides, ... ʒj.
Tinct. aloes, ... ʒss.
Tinct. guaiac. ammon., ... ʒiss.
Syrup., ... q. s. ad ʒvj.
M. Sig.: Tablespoonful three times a day.

TANACETUM (TANSY).

What preparations of Tansy are used?

The following unofficinal preparations are in use:—

Oleum Tanaceti, ... ♏i–iij.
Extractum Tanaceti Fluidum, . . . ♏x–ʒj.
Infusum Tanaceti (ʒi–Oj.), . . . ʒi–ij.

For what is Tansy employed in medicine?

As a stimulating emmenagogue and abortifacient; but its employment is exceedingly dangerous.

OXYTOCICS.

What are Oxytocics?

Remedies used to increase uterine action.

What drugs come under this head?

The drastic purgatives,—Quinine, Ergot, Smut of Indian Corn, and Cotton-plant-root.

ERGOTA (ERGOT).

What is Ergot?

A fungous growth found in the grain of rye, belonging to the genus Claviceps.

What is its appearance?

It occurs in triply-furrowed, dark-colored, slender grains, about an inch in length, having a peculiar oily and a characteristic odor.

What preparations are officinal?

Extractum Ergotæ Fluidum, . .	f℥ss–ij.
Extractum Ergotæ, ...	gr. ii–xx.
Vinum Ergotæ, ...	f℥i–f℥j.
Ergotin (unofficinal), ...	gr. ¼–v.

For what is Ergot employed in medicine?

To stimulate the uterus to contract in cases of inertia; as a hæmostatic in post-partum hemorrhage, menorrhagia, the bleeding of hæmorrhoids, epistaxis, and other forms of hemorrhage. In aneurism Ergot aids in the coagulation of the blood. In chronic diarrhœa and dysentery Ergot and Opium are well combined. In certain nervous diseases, where there is cerebral or spinal hyperæmia, Ergot acts by contracting the arterioles and diminishing the vascular fullness.

What effects follow the administration of large doses of Ergot?

The symptoms are those of gastroenteritis,—headache and vertigo, followed by nausea, vomiting, and purging. The heart is slowed and the arterial tension raised.

What forms may chronic ergotism assume?

They may be gangrenous or convulsive.

What are the symptoms of gangrenous ergotism?

Peculiar sensations are experienced in the hands and feet, with nausea, giddiness, and pain in the back. The limbs are cold and numb, and sensation is impaired. The skin assumes in one spot a livid hue, and symptoms

of dry gangrene appear. In some cases an inordinate desire for food is maintained to the last.

What are the symptoms of spasmodic ergotism?

The same subjective sensations are experienced in the extremities as in the gangrenous variety, but to these are soon added convulsive seizures, with painful muscular contractions of the extremities. Gastro-intestinal symptoms are also marked, but the same desire for food is present. Every variety of disturbance of the special senses has been noted. The case either ends in death from exhaustion, or recovery takes place with mental deficiency, local palsy, and habitual spasm as sequels.

What effect has Ergot on the heart?

It slows it by stimulating the peripheral inhibitory cardiac nerves. Large doses paralyze these and increase the heart rate.

How does Ergot affect arterial pressure?

It lowers it by depressing the heart and the vasomotor centres.

What effect has it on the intestine?

It causes contraction of the muscular fibres and increases peristalsis.

ADMINISTRATION.

Hæmoptysis.

℞ Ext. ergot. fluid., ... ℥iij.
Ext. ipecac. fluid.,
Tinct. opii deod., ... āā ℥ss.
M. Sig.: Teaspoonful every half hour.

℞ Ergotinæ, ... gr. xx.
Pulv. ipecac., ... gr. x.
Acid. gallic, ... gr. xx.
M. ft. pil. No. XX.
Sig.: One pill every two hours.

Renal Hemorrhage.

℞ Ext. ergot. fluid.,
Tinct. krameriæ, ... āā f℥ij.
M. Sig.: Teaspoonful every two hours.

Congestive Dysmenorrhœa.

℞ Ext. ergot. fluid., ... f℥ij.
Tinct. gelsemii, ... ℥j.
Tinct. aconit. rad., ... gtt. xvj.
M. Sig.: Teaspoonful every four hours.

Hypodermic Injection.

℞ Ergotinæ aq. ext., ... f℥j.
Glycerin., ... f℥j.
Aquæ destill., ... f℥vij.
Sig.: ♏ viij contains one grain of ergotin.

GOSSYPII RADICIS CORTEX.

What is Gossypium?

Ordinary cotton-plant.

What parts of the plant are used?

The hair of the seed, deprived of impurities and fatty material, is known as absorbent cotton. It also enters into the composition of the various collodions of the United States Pharmacopœia. The expressed Oleum Gossypii is used in the preparation of the officinal liniments. The root has been used as an emmenagogue, oxytoxic, and galactagogue in the Southern States.

What preparations are officinal?

Gossypii Radicis Cortex, . . . gr. xxx–℥j.
Extractum Gossypii Radicis Fluidum, . ♏xxx–f℥j.
Oleum Gossypii Seminis.

SIALAGOGUES.

What are Sialagogues?

Drugs which increase the flow of saliva.

In what way may they produce this effect?

They may stimulate the secretion of the gland

systemically or by a purely local influence on the mucous membrane of the mouth.

What drugs increase the flow of saliva through the system?

Mercury, Jaborandi, the Iodides, Antimony, and Calabar Bean.

What are the local Sialagogues in use?

Acids and Alkalies, Pellitory, Cubebs.

PYRETHRUM (PELLITORY).

What is Pyrethrum?

The root of the Anacyclus Pyrethrum.

In what form is it employed in medicine?

Half a drachm of the root is chewed from time to time for the relief of facial neuralgia and rheumatic pains and lingual paralysis. In the form of a gargle (℥iii–Oj) it is an officinal application in the relaxation of the fauces and uvula. A few drops of the tincture may be placed on a piece of cotton and inserted into the cavity of an aching tooth.

CUBEBA (CUBEBS).

How is Cubebs used as a Sialagogue?

The berries may be chewed slowly, so as to get their topical action on the mucous membrane of the fauces in cases of laryngeal and uvula relaxation, or the lozenges of Cubebs may be allowed to dissolve slowly in the mouth.

ERRHINES.

What are Errhines?

Remedies used on mucous membrane of the nose.

What drugs come under this head?

Smelling Salts, Camphor, Cubebs, Calomel, Cocaine, Acacia, Bismuth, Iodine, Carbolic Acid, Sanguinaria, Tobacco, and Ipecac.

In what forms are they applied?

The vapor of Hartshorn and of Camphor is inhaled. The other remedies mentioned are taken, very finely powdered, in the form of snuff.

ADMINISTRATION.

Coryza.

℞ Morph. sulph., ... gr. ¼.
Bismuth. subnit., ... ʒvij.
Pulv. acaciæ, ... ʒj.
M. ft. pulv.
Sig.: Use as snuff.

℞ Bismuth. subcarb., ... ʒvj.
Morph. muriat., ... gr. j.
Pulv. amyli, ... ʒij.
M. ft. pulv.
Sig.: Use as snuff.

℞ Pulv. argent. nit., ... gr. vj.
Pulv. acaciæ, ... ʒj.
Bismuth. subnit., ... ʒiij.
M. ft. pulv.
Sig.: Apply with insufflator.

℞ Morph. sulph., ... gr. ij.
Pulv. acaciæ, ... ℈ss.
Zinci sulph., ... gr. x.
Bismuth. subcarb., ... ʒss.
M. ft. pulv.
Sig.: Use as snuff.

℞ Acid. carbolic., ... ♏xl.
Sodii boratis,
Sodii bicarb., ... āā ʒij.
Glycerin., ... fʒvij.
Aquæ, ... q. s. ad fʒviij.
M. Sig.: Use as a spray.

℞ Sodii salicylatis, ... ʒij.
Sodii boratis, ... ʒiij.
Glycerin., ... fʒss.
Aquæ, ... q. s. ad fʒvj.
M. Sig.: Put a dessertspoonful into a pint of warm water and snuff it up.

EPISPASTICS.

What are Epispastics?

Remedies which are applied locally to cause an outpouring of serum beneath the cuticle.

By what other names are these drugs known?

They are also called blisters and vesicatories.

For what are Epispastics employed?

As applications in inflammations of serous membranes, to relieve dropsical effusions, and as counter-irritants in chronically-inflamed joints.

CANTHARIS (SPANISH FLY).

What are Cantharides?

The dried bodies of beetles,—the Cantharis Vesicatoria.

What is their appearance?

They vary in length from half an inch to an inch, are of a beautiful green color, with a heart-shaped head and handsome wings. Their taste resembles that of urine. When dry they are almost devoid of odor.

What is their active principle?

Cantharidin.

What preparations are officinal?

Tinctura Cantharidis (5 per cent.), . ℳi–xx.
Ceratum Cantharidis (canth. 25, yell. wax 20, resin 20, lard 25).
Ceratum Extracti Cantharidis (canth. 30, resin 15 yell. wax 35, lard 35, alcohol q. s.).
Charta Cantharidis (canth. 1, canad. turp. 1, olive oil 4, spermaceti 3, white wax 8, water 10 parts).
Linimentum Cantharidis (canth. 15, oil of turpentine q. s. ad 100 parts).
Emplastrum Picis cum Cantharide (Burgundy pitch 92 parts, ceratum cantharidis 8 parts).
Collodium cum Cantharide (canth. 60, flexible collodion 85, commercial chloroform q. s.).

What is the physiological action of Cantharis?

Locally it is very irritant, causing redness, pain, burning, and, if in sufficient quantity, deep-seated inflammation and ulceration. *Internally*, small doses cause burning and painful micturition. Large amounts cause violent gastroenteritis, with burning in the pharynx and œsophagus. Vomiting and purging of bloody material come on, with frequent desire to micturate, the urine being albuminous and bloody. Seminal emissions are not rare. Death occurs from collapse.

What is the antidote?

There is no special antidote. The stomach should be emptied with the stomach-pump, and large doses of mucilaginous material should be given, with the free exhibition of opium *per orem et rectum*.

What are the therapeutic uses of Cantharides?

Locally, the external preparations of Cantharides are useful in neuralgia, pleurisy, and acute rheumatism. *Internally*, the Tincture is used in affections of the urinogenital tract, in irritable bladder and vesical tenesmus when there is no acute inflammatory process, chronic pyelitis, and chronic catarrh of the bladder; in acute desquamative nephritis, after the subsidence of inflammation. A lotion of the strength of one part of Tincture of Cantharides to forty of water is a good application to burns. The Tincture is an ingredient of most hair tonics.

How is Ceratum Cantharides used?

It is best spread on sticking-plaster, leaving a margin of plaster all round to hold it in place. As soon as redness and vesication occur the cerate should be replaced by a flaxseed-poultice.

What are the advantages of Cantharides Collodion?

It can be applied with a camel's hair brush as a paint in case of delirium when the patient would remove any other dressing.

What dangers attend the use of Cantharides preparations?

The active principle may be absorbed and give rise to strangury.

RUBEFACIENTS.

How does a Rubefacient differ from an Epispastic?

In not producing structural changes in the skin to which it is temporarily applied.

Which are the principal Rubefacients?

Mustard, Capsicum, Turpentine, Ammonia, Burgundy Pitch.

SINAPIS (MUSTARD).

What varieties of Mustard are there?

Sinapis Alba (White Mustard) and Sinapis Nigra (Black Mustard).

How do they differ chemically?

Black Mustard yields, on distillation with water, a volatile oil; White Mustard does not.

Which variety is the stronger?

Black Mustard.

What preparations of Mustard are officinal?

Sinapis Alba. Charta Sinapis.
Sinapis Nigra. Oleum Sinapis Volatile.
Linimentum Sinapis Compositum.

What is the composition of Charta Sinapis?

Black Mustard mixed with a solution of gutta-percha and spread on paper, each square inch containing about six grains of Mustard.

What are the various uses to which Mustard is put?

As a counter-irritant applied to the epigastrium, a Mustard Plaster is useful in nausea, vomiting, colic, and cholera morbus. Applied to the chest, it will relieve pleurisy, pneumonia, pericarditis, and endocarditis. Applied to the inside of the thighs, a Mustard Plaster is often of service in bringing about menstrual flow.

CAPSICUM.

How is Capsicum employed as a Rubefacient?

In the form of what are known as Spice Plasters.

How are these made?

By mixing equal parts of Ginger, Cloves, Allspice, and Cinnamon with one-fourth part of Cayenne Pepper, and melting this mixture in a bag, soaking the bag in alcohol and applying it to the surface.

TEREBINTHINUM.

In what form is Turpentine used for its rubefacient properties?

In the form of the Turpentine Stupe.

How is this made?

A piece of flannel is wrung out with hot water, dipped into Turpentine previously warmed, wrung out again and applied to the part.

How long should a Stupe be left on?

Not longer than ten to thirty minutes.

AMMONIA.

How is Ammonia employed as a Rubefacient?

A piece of lint may be soaked with some Water of Ammonia, and, when laid on the part, covered with some material which will prevent its evaporation.

ESCHAROTICS.

What are Escharotics?

Drugs which are used to destroy tissues.

Which are the principal Escharotics?

Caustic Potash and Soda, Arsenious Acid, Zinc Chloride, Corrosive Sublimate, Nitrate of Mercury, Nitrate of Lead; Sulphuric, Nitric, Muriatic and Chromic Acids; Bromine, Sulphate of Copper, Sulphate of Zinc, and Burnt Alum.

POTASSA.

How is Caustic Potash made?

By boiling Liquor Potassæ, and running the melted Potash into moulds.

How is it employed?

The surrounding healthy tissue should be protected by a bit of adhesive plaster, in the centre of which a hole has been cut large enough to allow a piece of Potash to rest on the part to be destroyed. When sufficient escharotic action has taken place, its further action may be stopped by washing the part in vinegar.

What is Vienna Paste?

A grayish powder, composed of equal parts of Caustic Potash and unslaked lime.

How is it employed?

It may be mixed with Morphine and Chloroform so as to form a paste and spread upon Lead Plaster.

ARSENIC.

What dangers attend the use of Arsenic as an Escharotic?

It may be absorbed and cause death from its constitutional effects.

ZINCI CHLORIDUM.

How is Zinc Chloride made?

By the action of Hydrochloric Acid on Zinc.

What advantage does it possess?

It does not endanger life if absorbed.

What is Canquoin's Paste?

A mixture of Chloride of Zinc with flour and water, in the proportion of one part of Zinc to six of paste.

HYDRARGYRI CHLORIDI CORROSIVUM.

How is Corrosive Sublimate used as an Escharotic?

In the form of a saturated solution, applied with a brush.

What risks attend its use?

The danger of absorption and poisoning.

LIQUOR HYDRARGYRI NITRATIS.

How is Nitrate of Mercury solution made?

By dissolving Red Oxide of Mercury in excess of Nitric Acid.

How is it applied?

On a glass rod.

ACIDS.

How are the Acids used as Escharotics?

A drop or two of Chromic, Sulphuric, or Muriatic Acid may be applied to small, morbid growths by means of a glass rod.

BROMINE.

What is the character of the action of Bromine as an Escharotic?

It is the most rapid and severe of the Caustics.

How is it employed?

It is applied with a glass rod to the part to be affected.

DEMULCENTS.

What are Demulcents?

Substances which exert a soothing influence on inflamed surfaces.

Which are the principal Demulcents?

Gum Arabic, Tragacanth, Elm, Liquorice, Iceland Moss, Flaxseed, Sago, Barley, Tapioca, etc.

ACACIA (GUM ARABIC).

What is Gum Arabic?

A gummy exudation from the Acacia Vera.

What preparations are officinal?

Mucilago Acaciæ. Syrupus Acaciæ.

Into what pharmaceutical preparations does Acacia enter?

Troches of Chalk, Cubebs, Liquorice, and Opium; Compound Chalk-powder, and the mixtures of Liquorice and of Almonds.

For what is Gum Arabic used in Medicine?

To form emulsions, to hold insoluble powders in suspension, and as a soothing application in sore throat, catarrhal inflammation of the stomach and intestines, and in acute irritant poisonings.

TRAGACANTH.

What is Tragacanth?

A gummy exudation from the Astragalus Gummifer.

What is its appearance?

It occurs in large, white, horny flakes, which swell up into large masses when moistened, and give the characteristic iodine reaction.

What preparation is officinal?

Mucilago Tragacanthæ (tragacanth and glycerin 18, water ad 100 parts); dose, f℥j.

For what is Tragacanth used?

To suspend resins and heavy powders in emulsions, and as an excipient for making pills and troches.

ULMUS (SLIPPERY ELM).

What preparation of Elm is used?

Mucilago Ulmi (elm 6, water 100 parts, macerated for two hours and strained).

For what is Elm used?

As a demulcent drink in diarrhœa, dysentery, and urinary affections, and as a poultice, made by first grinding the bark to powder.

CETRARIA (ICELAND MOSS).

What is Iceland Moss?

The fronds of Cetraria Islandica, a lichen growing in Iceland and northern latitudes.

What is its appearance?

The fronds are about four inches long, brownish externally, white within. They are devoid of odor, but have a bitter, mucilaginous taste.

What preparation is officinal?

Decoctum Cetrariæ (5 per cent.); dose, f℥ij.

For what is Iceland Moss used?

As a slightly tonic and nutrient demulcent. It may be made into a jelly after being previously soaked for some hours in a weak alkaline solution to remove its bitter principle.

CHONDRUS (IRISH MOSS).

What is Carrageen?

The fronds of Chondrus Crispus.

What is its active principle?

A starch-like principle,—Carrageenin.

How does it differ from starch?

In not giving the Iodine reaction.

For what is it employed?

Principally as a nutritious food for invalids, in the form of a jelly.

GLYCYRRHIZA (LIQUORICE).

What is Liquorice?

The root of the Glycyrrhiza Glabra.

What is its active principle?

A neutral substance.—Glycyrrhizin.

How does Glycyrrhizin differ from sugar?

In not being changed into Oxalic Acid by Nitric Acid, and in its not undergoing vinous fermentation.

What preparations of Liquorice are officinal?

Extractum Glycyrrhizæ.
Extractum Glycyrrhizæ Purum.
Extractum Glycyrrhizæ Fluidum.
Mistura Glycyrrhizæ Composita (Brown Mixture), ... fʒi–fʒss.
Pulvis Glycyrrhizæ Compositus.
Trochischi Glycyrrhizæ et Opii.
Glycyrrhizinum Ammoniatum.

For what is Liquorice employed?

As a demulcent in sore throat, and to disguise the taste of unpleasant substances such as Quinine, Chloride of Ammonium, Senna, Turpentine, etc.

For what is Brown Mixture used?

As an expectorant and sedative in acute bronchitis and laryngitis.

What are its principal ingredients?

Paregoric 12 per cent., Antimonial Wine 6 per cent., Sweet Spirits of Nitre 3 per cent.

What is the composition of the Troches of Liquorice and Opium?

They contain $\frac{1}{20}$ grain of Extract of Opium, 2 grains of Extract of Liquorice, with Gum Arabic, Sugar, and Oil of Anise.

SASSAFRAS.

In what forms is Sassafras officinal?

As the root-bark of the Sassafras Officinalis, and its pith, Sassafras Medulla.

What preparation of the bark is officinal?

Oleum Sassafras, ... ℳi–v.

What preparations of the pith are there?

Mucilago Sassafras Medullæ.
Infusum Sassafras (unofficinal).

In what form is the pith found?

In slender, white, curved, cylindrical pieces, devoid of odor and taste.

How does Mucilago Sassafras Medullæ differ from Mucilago Acaciæ?

The Mucilage of Sassafras is not precipitated by the addition of Alcohol.

What are the therapeutic uses of Sassafras?

Its hot infusion is used as a domestic diaphoretic. The Mucilage is an excellent soothing drink in inflamed conditions of the gastro-intestinal tract. The oil is used for flavoring, and is the principal ingredient of Hood's Sarsaparilla.

ALTHÆA (MARSH-MALLOW).

What is Marsh-Mallow?

The peeled root of the Althæa Officinalis.

In what form does it occur?

In white, cylindrical pieces, having an aromatic odor and sweet taste.

What preparation is officinal?

Syrupus Althæa (4 per cent.).

Into what preparations does it enter?

Massa Hydrargyri and Pilulæ Phosphori.

For what is it used?

As a demulcent drink in the form of a *decoction*, as a poultice when *powdered*, and in the form of the *syrup* as a vehicle for other drugs.

LINUM (FLAXSEED).

What is Linum?

The seeds of the Linum Usitatissimum.

For what is it employed?

Principally as a poultice when ground to fine powder (flaxseed-meal), and as a demulcent drink with sugar and lemon-juice in inflammation of the gastro-intestinal and genito-urinary tracts. The oil is given as an enema in cases of hæmorrhoids, and, mixed with lime-water, forms an emulsion much used as an application to burns.

What preparations are used?

Infusum Lini (flaxseed-tea).
Oleum Lini (linseed-oil).
Carron Oil (equal parts of boiling water, lime-water, and linseed-oil).

Infusum Lini.

Flaxseed,	℥iij.
Liquorice-root,	℥j.
Boiling water,	f℥x.

Infuse for 4 hours and strain.

CYDONIUM (QUINCE-SEED).

What preparation of Quince is officinal?

Mucilago Cydonii.

For what is it used?

As a soothing application in conjunctivitis, sore throat, gastritis, etc., and as a vehicle for gonorrhœal injections. As a dressing for the hair, Mucilago Cydonii is used under the name of Bandoline.

EMOLLIENTS.

What are Emollients?

Substances which soften the skin and render it more pliable.

Which are the principal Emollients?

Glycerin, Oils, Lard, Cacao Butter, and Cold Cream.

GLYCERINUM.

What is Glycerin?

A clear, syrupy-sweet liquid, obtained by the decomposition of fats, through the agency of steam.

What are its physiological properties?

It is very hygroscopic, and abstracts water from the tissues with which it comes in contact. To some skins it is very irritating. Internally it has no effect on the human system beyond exerting a mild, laxative influence.

What are its therapeutic uses?

Principally as an inert ingredient of prescriptions to disguise the unpleasant taste of other drugs; as an emollient it enters into the composition of many ointments for eczema, seborrhœa, scabies, pruritus, and other skin diseases. Added to hypodermic solutions, it acts as an antiseptic, preventing putrefaction. As an enema one or two drachms are excellent for emptying the bowels during convalescence from fevers. In conjunctivitis and coryza its local application gives great relief.

It may be used to sweeten the beverages of persons suffering from diabetes, who cannot take sugar. Combined with Tincture of Benzoin, it is the best application to chapped lips. It is the vehicle principally used for the numerous local applications of Tannic Acid.

Into what officinal preparations does it enter?

Glyceritum Amyli.	Pilulæ Phosphori.
Glyceritum Vitelli.	Massa Hydrargyri.

Mucilago Tragacanthæ.

POULTICES.

What substances are used for making Poultices?

Flaxseed-meal, Indian Meal, Bread and Milk, Wood Charcoal, Wheat-flour, Starch, Bran, Slippery Elm.

What is the *rationale* of the employment of Poultices?

They promote the activity of the circulation by their warmth, and relax the tissues by their moisture. Hence the processes of nutrition are hastened, morbid products removed with greater rapidity, suppuration promoted, and inflammatory processes abated. In the deep-seated inflammation of pleurisy, pneumonia, etc., they probably act as slight counter-irritants.

PROTECTIVES.

What are Protectives?

Agents used to protect inflamed tissues from the influence of external agencies.

Which are the principal Protectives?

Plasters, Collodion, Flexible Collodion, and Gutta-percha.

What plasters may be used as unirritating Protectives?

Lead Plaster and Soap Plaster.

COLLODION.

What is Collodion?

A solution of two hundred grains of Pyroxylin in a mixture of twelve and a half ounces of Stronger Ether and three and a half of Stronger Alcohol.

How is it employed?

Repeated coatings are made with a camel's hair brush.

What disadvantage attends its use?

It has a great tendency to contract.

How may this be obviated?

By the addition of a few drops of Castor Oil to each ounce.

What is the composition of Flexible Collodion?

Twenty grains of Canada Turpentine and ten grains of Castor Oil are added to each ounce of the foregoing.

GUTTA-PERCHA.

What is Gutta-percha?

The concrete juice of the Isonandra Gutta, a tree growing in the Malay Archipelago.

What preparation is officinal?

Liquor Guttæ-Perchæ, made by dissolving small pieces of Gutta-percha in Chloroform.

What is Traumaticine?

A title used to designate a 10 per cent. solution of Gutta-percha in Chloroform.

For what is it used?

As a covering for slight wounds, and for the application of Chrysarobin to psoriasis.

ANTACIDS.

What are Antacids?

Drugs which are used to neutralize the abnormal acidity of secretions of the body.

What secretions can thus be neutralized?

The gastric, intestinal, and urinary fluids.

Which are the principal Antacids?

Salts of Sodium, Lime, Potassium, Magnesium, and Ammonium.

SODIUM.

What preparations of Sodium are officinal?

Sodii Acetas,	gr. xx–3j.
" Arsenias,	gr. $\frac{1}{24}$–$\frac{1}{12}$.
" Bicarbonas,	gr. x–3j.
" Benzoas,	gr. v–3j.
" Boras,	gr v–3j.
" Bromidum,	gr. v–3j.
" Carbonas,	gr. v–xxx.
" Chloras,	gr. v–xx.
" Chloridum.	
" Hypophosphis,	gr. v–x.
" Hyposulphis,	gr. v–xx.
" Iodidum,	gr. v–3ij.
" Nitras,	℈i–ij.
" Phosphas,	℈i–3j.
" Pyrophosphas,	3ss–3ss.
" Salicylas,	gr. v–3j.
" Santoninas,	gr. ii–x.
" Sulphas,	gr. v–xx.
" Sulphis.	
" Bisulphis.	
" Sulphocarbolas,	gr. x–xxx.

What is the physiological action of the Salts of Sodium?

They act as alkalies, neutralizing acid secretions without exerting the depressing effect on the system exhibited by the Potash Salts.

Which preparations are used for their antacid effects?

The Carbonate, Bicarbonate, and dried Carbonate.

CALCIUM.

What is Chalk?

Carbonate of Calcium.

What preparations of Chalk are officinal?

Pulvis Cretæ Compositus, . . . gr. v–3j.
Mistura Cretæ.
Trochischi Cretæ.

What preparations of Lime are officinal?

Calcii Carbonas Precipitatus, . . gr. v–xx.
" Chloridum, ... gr. x–xx.
" Bromidum, ... gr. v–3j.
" Hypophosphis, ... gr. x–xxx.
" Phosphas Precipitatus, . . gr. ii–x.
Liquor Calcis, ... f℥ss–ij.
Syrupus Calcis, ... f3ss–ij.
Linimentum Calcis.
Calx Chlorata, ... gr. iii–v.
Calx Sulphurata, ... gr. $\frac{1}{10}$–$\frac{1}{2}$.
Creta Præparata, ... gr. v–xx.

How is Liquor Calcis made?

By dissolving a piece of Calcium Hydrate in water, which takes up about 15 per cent.

To what is the cloudiness of Lime-water due?

To its absorption of Carbonic Gas from the air, and the formation of Calcium Carbonate.

What are the therapeutic uses of Lime-water?

As an addition to milk it is invaluable in arresting vomiting. Its addition to milk will often prevent the formation of coagula with children of weak digestion. Infant diarrhœa is frequently stopped by incorporating Lime-water with their milk. Externally, Lime-water is used as a wash for tinea capitis. Mixed with Olive Oil it forms the best dressing for burns, and is known as Carron Oil. As a spray to the throat, Lime-water is used to dissolve the false membrane of diphtheria and croup.

For what are the preparations of Chalk used?

As antacids and slight astringents.

What is the dose?

A teaspoonful is boiled in a pint of milk and the decoction taken as nutriment.

What is Castillon's Powder?

A mixture of three parts of Tragacanth, Jalap, and Sago, with one part of powdered Oyster-Shell.

What is Testa Præparata?

Ground Oyster-Shell.

On what do its properties depend?

On Carbonate Calcium, with some animal matter.

In what form is it administered?

In the form of Castillon's Powders.

What is the composition of Chalk-mixture?

Compound Chalk-powder twenty parts, Cinnamon-water and water forty parts each.

For what is it used?

In the treatment of diarrhœa, combined with Tincture of Krameria and Paregoric.

ANTHELMINTICS.

What are Anthelmintics?

Remedies used to destroy or expel the various forms of worms which infest the system.

What are the main divisions of the worms which infest the system?

Tape-worms, round-worms, and seat-worms.

How may these entozoa be destroyed?

Either by remedies acting through the system or by rectal injections.

What routine should be observed in the administration of Anthelmintics?

The alimentary canal should be empty at the time of

their administration, and its administration should be followed by a brisk purgative.

What remedies are principally used to destroy the tape-worm?

Male Fern, Turpentine, Pumpkin-seeds, Koosso, Kamata, and Pomegranate.

Which are directed more especially against the round-worm?

Santonine, Pink Root, Azedarach, Wormseed.

How are seat-worms destroyed?

By the injection per rectum of Quassia, Alum, Common Salt, Decoction of Aloes, and Carbolic Acid.

FILIX MAS (MALE FERN).

What is Male Fern?

The root of the Aspidum Filix Mas, a plant growing in Europe.

On what do its virtues depend?

On an oleoresin.

What is the dose?

From half a teaspoonful to a teaspoonful, given in the morning on an empty stomach, and followed in the evening by a brisk cathartic.

ADMINISTRATION.

℞ Oleoresinæ filicis maris, ... fℨj.
Olei terebinthinæ, ... fℨj.
Vitell. ovi, ... ij.
Olei ricini, ... fℨj.
M. Sig.: Take all at once.

℞ Ext. filicis maris,
Chloroformi, ... ää fℨj.
Emuls. ol. ricini, ... fℨiij.
M. Sig.: One dose after twenty-four hours' fasting.

TEREBINTHINUM.

In what dose is Turpentine administered as a vermifuge?

Half an ounce may be given mixed with twice that amount of Castor Oil.

PEPO (PUMPKIN-SEED).

How are Pumpkin-seeds administered for the destruction of tape-worm?

Two ounces are beaten up with sugar and water and taken in the form of an emulsion early in the morning.

KAMALA.

What is Kamala?

The hair of the fruit of the Rottlera Tinctoria.

In what form does it occur?

As a red, inflammable powder.

How is it administered?

In the form of a tincture, or given in syrup in doses of from one to two drachms.

BRAYERA (KOOSSO).

What is Brayera?

The dried flowers and unripe fruit of the Brayera Anthelmintica.

Where does it grow?

In Abyssinia.

What are its active principles?

A resin (Koossin), Tannic Acid, and Volatile Oil.

What preparations are officinal?

Extractum Brayeræ Fluidum, . .	f℥ii-f℥j.
Infusum Brayeræ (6 per cent.), . .	f℥iv–viij.

In what form is it administered?

An emulsion may be made of the infusion with Castor Oil, yelk of eggs, Ether, and Oil of Anise, combined with ten or twenty drops of the oleoresin of Male Fern.

GRANATUM.

What part of Pomegranate is officinal?

The bark of the root of the Panica Granatum.

What are its active principles?

Two alkaloids,—Pelletierina and Isopelletierina.

What is the physiological action of these alkaloids?

Similar to that of Curara, causing motor paralysis without impairment of sensation.

What preparations are used?

Extractum Granati Fluidum, . . .	ʒss–iss.
Decoctum Granati, ...	fʒii–iv.
Pelletierinæ Tannas, ...	gr. ss–j.

SANTONICA (LEVANT WORMSEED).

What is Santonin?

A crystalline principle derived from the Artemisia Contra, a plant growing in Asia Minor and other Eastern localities.

What preparations are officinal?

Santoninum, ...	gr. ¼–j.
Sodii Santonina, ...	gr. ii–x.
Trochischi Sodii Santoninatis, . .	gr. ii–x.

What is the physiological action of Santonin?

In large doses it causes free salivation, convulsions, cramps, unconsciousness, with acceleration of the breathing and slowing of the pulse.

What fatal cases are on record?

Two grains have killed a child five years old. Four

grains nearly proved fatal to a child two and a half years old.

What objections are there to the use of Santoninum?

It is an unsafe remedy for young children. As it acts very slowly, the first dose should not be repeated for at least eight or ten hours.

What effect has Santonin on the vision?

It causes xanthopsia,—or yellow sight,—surrounding objects appearing, to the person taking it, of a yellow color.

What effect has it on the urine?

It increases its flow and gives it a marked yellow color, which subsequently becomes saffron, and finally purplish.

To what is the chromatopsis due?

To a staining of the humors of the eye.

What symptoms have been observed in santonin-poisoning?

Great pallor, convulsive tremblings, vomiting, colicky pains, dilatation of the pupils, unconsciousness, and sudden death. The pulse and respiration are increased in rapidity.

SPIGELIA (PINK ROOT).

What is Pink Root?

The root of the Spigelia Marilandica.

Where does it grow?

In the Southern United States.

How does it act as a vermifuge?

By narcotizing the worm and rendering its expulsion easy by subsequent catharsis.

What preparations are officinal?

Extractum Spigeliæ Fluidum, . . .	f℥i–ij.
Infusum Spigeliæ Fluidum, . . .	f℥iss–v.
Extractum Spigeliæ et Sennæ Fluidum (U. S. P., 1870), ...	f℥j.

What is the composition of this "Worm Tea?"

Spigelia 15 parts, Senna 10, Fennel 10, Manna 30, and water 500 parts.

ADMINISTRATION.

℞ Ext. spigeliæ fluid., ...	f℥j.
Ext. sennæ fluid., ...	f℥ss.

M. Sig.: A teaspoonful.

CHENOPODIUM (WORMSEED).

What is Wormseed?

The fruit of the Chenopodium Anthelminticum, or Jerusalem Oak.

What is its appearance?

It occurs as light-brown, tiny seeds, having a sickening odor and pungent taste.

On what does its virtues depend?

On a volatile oil,—Oleum Chenopodii.

How is it administered?

Ten drops of the oil may be given on sugar, three times a day, followed on the second day by a brisk cathartic.

MUCUNA (COWHAGE).

What is Cowhage?

The sharp hairs of the Mucuna Prurens.

How are these hairs administered?

They are mixed with molasses and administered in doses of a teaspoonful three times a day.

DIGESTANTS.

What are Digestants?

Remedies administered to assist the action of the stomach in dissolving food.

Which are the principal Digestants?

The Acids, Pepsin, Pancreatin, Ingluvin.

Which are the principal digestant acids?

Acidum Hydrochloricum Dilutum and Acidum Lacticum.

How is Pepsin obtained?

By digesting the mucous membrane of the pig's stomach in acidulated water, and precipitating the Pepsin with Salt, Acetate of Lead, or Alcohol.

What preparations of Pepsin are generally used?

Pepsinum Saccharatum, . . .	gr. v–℥j.
Liquor Pepsini, ...	f℥ii–iv.
Lactopeptine, ...	gr. v–xv.
Peptogenic Powder, ...	℥j.

What objection is there to administering Wine of Pepsin?

The Pepsin is precipitated by the Alcohol in the Wine.

PANCREATIN.

What is Pancreatin?

The juice of the pancreas.

What is its action?

It digests proteid and starchy materials, converting them into peptones and sugar respectively, and, further, it emulsifies fat.

In what form is Pancreatin administered?

Generally as Liquor Pancreaticus; dose, f℥i–f℥ss.

For what is it employed?

To peptonize milk and soups for the use of patients with excessively weak digestive power.

ABSORBENTS.

For what are Absorbents employed?

To take up unpleasant gaseous emanations arising from the decomposition of substances either without or within the system.

What are the principal Absorbents?

Cotton and Charcoal in its two forms.

CARBO.

In what forms is Charcoal officinal?

As Carbo Ligni and Carbo Animalis.

What is the source of Carbo Ligni?

The porous wood of the young Salix, or Willow.

How is Animal Charcoal made?

By the partial burning of bones.

What impurities does it contain?

A large amount of Phosphate and Carbonate of Calcium.

How are these removed?

By digesting the Charcoal with Hydrochloric Acid, washing it with water, and heating it to redness.

What is it then known as?

Carbo Animalis Purificatus.

For what is Charcoal used in medicine?

As an absorbent of gases it is incorporated with poultices for wounds characterized by foul odors. Taken in the form of ten-grain wafers, it removes the unpleasant odor of the breath arising from indigestion,

and relieves gastralgia, pyrosis, and nausea in certain forms.

For what is Carbon Bisulphide used?

In half-drop doses it will relieve the pain of gastric cancer, but its offensive odor almost entirely forbids its employment.

ANTISEPTICS.

What are Antiseptics?

Remedies used to destroy microbes and arrest putrefaction.

What are the principal Antiseptics?

Carbolic, Salicylic, Boric, Benzoic, and Sulphurous Acids; Thymol, Bichloride of Mercury, Permanganate of Potassium, Alcohol, Chlorine.

ACIDUM CARBOLICUM.

What is Carbolic Acid?

A product in the distillation of coal-tar.

What is its appearance?

It occurs in transparent, acicular crystals, having a tarry odor and hot, acrid taste.

In what is it soluble?

Water, Alcohol, Glycerin, Ether, and Oils.

What preparations are in use?

Unguentum Acidi Carbolici (10 per cent.).
Glyceritum Acidi Carbolici (1–4).
Aqua Acidi Carbolici (glycerite, ʒx–ʒj).
Sodii Sulphocarbolas; dose, . . gr. x–xxx.
Salol.
Resorcin.

What is the physiological action of Carbolic Acid?

It is poisonous to all forms of life. Its application to the mucous membrane or integument causes a burning

pain, with the formation of an eschar. Taken internally, it coagulates the albumin of the mucous membrane with which it comes in contact, leaving them whitened and corrugated in patches. The urine is blackened in color, and the sulphates disappear from it. Large doses may produce sudden unconsciousness, embarrassment of respiration, abolition of reflexes, and death from cardiac failure. Convulsions are rarely present. The pulse is feeble and running.

How is Carbolic Acid eliminated?

Chiefly by the urine, breath, saliva, and in all the secretions.

To what are the convulsions, when present, due?

They are spinal, the centres being primarily stimulated and subsequently depressed.

What effect has Carbolic Acid on the circulation?

It depresses the heart and paralyzes the vaso-motor centre.

How does it affect respiration?

It stimulates the periphery of the vagi and accelerates the breathing.

In what form is it eliminated?

As Sulphocarbolic Acid.

What are the internal uses of Carbolic Acid?

To relieve nausea and vomiting, and the summer diarrhœa of children. As a spray it is a useful inhalation in nasal catarrh, ozæna, chronic bronchitis, whooping-cough, asthma, and hay fever. In typhoid fever, diphtheria, scarlet fever, etc., it is one of the many specific remedies.

What are its external uses?

As an antiseptic dressing for wounds, to allay itching

of the skin, and to correct the fetor of ill-smelling discharges.

What is the antidote to poisoning by Carbolic Acid?

A soluble sulphate.

ADMINISTRATION

Itching of the Skin.

℞ Acid. carbolic., ... ℥ij.
Glycerin, ... f℥j.
Aquæ rosæ, ... ad f℥viij.
M. Sig.: Use as directed.

Chilblains.

℞ Acid. carbolic., ... ℥j.
Tinct. iodi, ... f℥ij.
Acid. tannic., ... ℥ij.
Cerat. simplicis., ... ℥iv.
M. Sig.: Ointment.

Nausea.

℞ Acid. carbolic., ... gr. iv.
Bismuth. subnit., ... ℥ij.
Mucilaginis acaciæ, ... f℥j.
Aquæ menth. pip., ... f℥iij.
M. Sig.: A tablespoonful every three hours.

Cholera Infantum.

℞ Acid. carbolic., ... gr. iv.
Tinct. iodi, ... gtt. xvj.
Aquæ menth. pip., ... f℥iv.
M. Sig.: Tablespoonful every hour.

In what strength is Carbolic Acid used as an antiseptic dressing?

As a spray, 5 per cent.; as a wash, from 2½ to 5 per cent.; and as an ointment, in the strength of 5 per cent.

ACIDUM SALICYLICUM.

What is the source of Salicylic Acid?

The bark of Salix Alba, or common White Willow.

What preparations are officinal?

Salicinum,	gr. xx–℥j.
Acidum Salicylicum,	gr. v–℥j.
Sodii Salicylas,	gr. v–℥j.
Lithii Salicylas,	gr. v–℥j.

What is the physiological action of Salicylic Acid?

It produces symptoms similar to those of cinchonism accompanied by profuse perspiration and a decided fall in temperature. Large doses cause nausea and vomiting, sweating, disturbances of respiration, lowering of the temperature, and collapse. The urine is olive-green and contains albumin. In some cases violent delirium is present.

What effect has Salicylic Acid on the heart?

It depresses the heart directly.

How does it affect respiration?

It causes an increase in the respiratory rhythm by stimulating the respiratory centre, and by irritating the peripheral ends of the pulmonary vagi.

What effect has Salicylic Acid on temperature?

It does not affect normal temperature. Fever is generally reduced by large doses.

How is Salicylic Acid absorbed?

As a Salicylate of Soda.

How is it eliminated?

By the kidneys as Salicylic Acid.

To what is the green color of the urine due?

To Pyrocatechin, or Indican.

What are the therapeutic uses of Salicylic Acid?

Principally as an *antipyretic* in rheumatism and high fevers, in rheumatic tonsillitis, and as an *antiseptic* application in eczema, gangrenous wounds, and as a deodorant addition to dentifrices.

THYMOL.

What is Thymol?

A stearopten, obtained from the oil of the Thymus Vulgaris.

What is its appearance?

It occurs in large, colorless crystals, having an aromatic odor and pungent taste.

In what is it soluble?

Alcohol, fats, and oils.

In what forms is it used?

Thymol Solution, ...	1–1000.
Thymol Gauze, ...	1–100.
Thymol Ointment, ...	gr. v–ʒj.

For what is Thymol used in medicine?

As an antiseptic dressing for wounds; as a spray in laryngitis, diphtheria, etc., and ulcerated conditions of the mouth; as an ointment in eczema, ringworm, etc.; and internally in catarrh of the bladder, phthisis, and diabetes.

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